

ERNEST BORN



**THE**  
**ARCHITECTURAL RECORD**

**1935**

**5**

THE ARCHITECT AND PUBLIC WORKS • PRISON DESIGN



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ORIGINAL DESIGN OF THE WASHINGTON MONUMENT, WASHINGTON, D. C. (Left) From original drawing in Library of Congress. (Right) An engraving by A. C. Warren

**ROBERT MILLS: ARCHITECT OF THE WASHINGTON MONUMENT (1781-1855).** By H. M. Pierce Gallagher. Foreword by Fiske Kimball. Columbia University Press. 233 pages, illustrated. \$4.50

Some years ago there appeared in *THE ARCHITECTURAL RECORD* several articles on Robert Mills by H. M. Pierce Gallagher. Since then additional material accumulated, and the articles have become chapters in Mrs. Gallagher's volume. The first part of the book treats of Robert Mills as a citizen, the second part reviews his professional career and the third part provides an excellent bibliography and eleven appendices. These latter constitute an interesting collection of letters and documents that give the necessary flavor to a chronicle of events occurring in the new nation during the first half of the nineteenth century.

Mrs. Gallagher attributes her interest in the subject of architecture to a timely and early bit of encouragement by her father. In later years the circumstance of finding residence in Baltimore in the shadow of the Washington Monument there focused her interest on the record of the life of the relatively unknown architect of the monument. To Mrs. Gallagher must go our appreciation of her valiant efforts to piece together the story of this life that had come down to our times in obscure and unrelated fragments. Her researches give us the record of one of the earliest and most notable careers in the profession of architecture in the United States. It is hoped that this new compilation of the life and achievements of Robert Mills will prove the required instrument to stir to completion the movement which has already been started to mark in a suitable manner what is today merely known as "Grave No. III" in the Congressional Cemetery in Washington.

Was Robert Mills "the first native born American to enter the study of architecture in the United States"? These words are his own, quoted from his "Statistics of

South Carolina." We regret that Mrs. Gallagher's reply to this question (in a footnote on page 5 of her book) is not more adequate. (Mills is twice quoted as making the statement: page 3 and page 168. On page IX and page 183 the statement also occurs.) The claim rests on very slender grounds. Charles Bulfinch graduated from Harvard the year Mills was born and was established as an architect twenty years before Mills opened his own office. The question simmers down as to just what each man did between the ages of 20 and 27 to prepare himself for his professional work. Due no doubt to limited means, Mills traveled only in the United States. He worked under Jefferson, Hoban and Latrobe. Bulfinch, the son of a prominent Boston physician, traveled and studied in Europe. The fact that Bulfinch had these additional advantages does not imply that he did not also travel and study in the United States long before Mills. The very fine distinction that probably holds for Mills is one to be guarded against by the hasty reader. From Mrs. Gallagher's book we gather that competitors for the "title" must be classified as "brick-layers" or "builders" on the one hand or as "gentlemen" on the other in order that Mills may be permitted to pursue the fortunate middle ground.

The title of the book, "Robert Mills, Architect of the Washington Monument," leads one to expect a more complete history than one finds of the Washington National Monument in Washington, D. C., for we infer that it is from that monument that the book derives part of its title, rather than the Washington Monument in Baltimore. However, only twelve pages of the 233-page book are devoted to the structure in Washington. A rather too romantic presentation is given of this material and certain statements are repeated that lead to inaccurate conclusions regarding the monument itself. These pages could well have recorded steps in the evolution of the design of this structure that become increasingly hazy with the passing of the years.



The case of the relation of Robert Mills to the Bunker Hill Monument in Boston is better presented. Unfortunately, from the standpoint of a champion of Mills, this material merely serves to emphasize how slight is his connection with the design of this structure. The point will undoubtedly continue to be veiled in controversy, even though the conclusion seems quite obvious that Mills merely submitted two designs in the competition sponsored by the Bunker Hill Monument Association, neither of which was accepted. The records left us must continue to give to Solomon Willard the great majority of the credit for the design. Mrs. Gallagher states on page 104: "The part played by Greenough's model was obviously small, if it had any importance at all." It must be recalled that Greenough submitted not only a model but a design and an essay in which he emphasized, without reservation, that the monument should take the form of an obelisk. The records indicate that his arguments impressed the committee. Mills on the other hand submitted a design for a column and also one showing an obelisk, recommending the latter as more desirable. The only question seems to be the amount of credit Willard must share with Greenough in determining the form of this monument.

In the letter which Mills sent with the competition drawings for the Bunker Hill Monument he states that in the case of his obelisk design, the base shall be 24 feet and the top width 15 feet (page 204). The design of an obelisk requires the determination of but four dimensions. The relationship between these four dimensions is of course of major importance. It is therefore interesting to note that the base and top dimensions of the Washington Monument, Washington, D. C., have the same relation as the dimensions given above. The curious part, however, is that these are not the dimensions Mills had in mind in his original design for the Washington structure. They were arrived at twenty years after his death by those commissioned to complete the work.

The admirable figure and distinguished career of Robert Mills emerge through these controversial clouds. The record of his work needs no gilding nor the pressing of any slight claims based on fine distinctions. Here was a man of vigorous imagination and yet one who at once came to grips with practical elements of building design that in some respects remain problems today. He wrote: "A builder need not be an architect, but every architect must be a builder."

In his designs, Mills evolved practical solutions of the problem of fireproofing. He was interested in the earliest experiments in gas lighting. Acoustics was a subject which, as he puts it, "engaged my attention from the earliest practice of my profession." The result that he obtained in this respect in one building, however, is reminiscent of the story told of H. H. Richardson. A church he had designed was practically completed when he decided to test for himself the acoustic properties of the nave. He posted an assistant near the entrance, mounted the pulpit and called out, "Do you hear me?" No doubt the reply must have shaken him: "Yes, sir, I heard you twice."

This practical side of Mills's nature resulted in engineering work that in itself constituted a notable career. He occupied himself with plans for improving the navigability of rivers, the reclaiming of swamps and the building of canals. The single arch wood bridge with a span of 344 feet, over the Schuylkill River at Philadelphia, was designed in cooperation with Lewis Wernwag. He was the author of drainage and waterworks projects for towns and an enthusiastic advocate of the possibilities of the railroad at a time when this means of transportation was in its infancy. He gave some study to a

type of railroad construction which sounds strangely prophetic—a type which "admits one hundred miles an hour to be accomplished, if required, so as to enable the government to transport troops or munitions of war from the Mississippi River to the Pacific Ocean in less than 20 hours."

In his architectural work Mills was responsible for no less than fifty important works, many of which still survive. Among these should be mentioned the old State Capitol at Harrisburg, the Patent Office, the old Post Office and the Treasury building in Washington, together with the Washington Monuments in Baltimore and Washington.

Robert Mills was born August 12, 1781 in Charleston, South Carolina, the son of William (1750-1802) and Ann Taylor (1755-1790) Mills. He died at his residence, 553 New Jersey Avenue, corner of B Street South, Washington, D. C., on March 3, 1855.

*Reviewed by JOHN T. CRONIN.*

**THE AMERICAN SCHOOL AND UNIVERSITY.** *The American School Publishing Corporation, 470 Fourth Avenue, New York City. 427 pages. Illustrated. \$2.50*

This yearbook is the seventh annual edition devoted to the design, construction, equipment, utilization, and maintenance of educational buildings and grounds. Contributors are leaders in the educational field, engineers, architects and city planners, landscape architects. The text is divided into twelve sections, as follows: (I) Problems of Planning and Finance; (II) Design and Construction of Buildings; (III) Operation and Maintenance; (IV) the Planning and Planting of Grounds; (V) Buildings and Equipment for Physical Education and Play; (VI) Classroom—Auditorium—Library—Commercial Department; (VII) Cafeteria—Home Economics—Dormitory; (VIII) Laboratory and Shop; (IX) List of College, University and Normal School Presidents; (X) List of Superintendents of Schools in places of 5,000 population and over; (XI) List of architects for educational buildings; (XII) Aids available to local school boards from state departments.

**PROGETTO DELL'AUDITORIUM IN ROMA.** 73 pages. *Illustrated.*

The new auditorium in Rome was designed by E. A. Griffini and E. Faludi, architects, and G. Cavaglieri, engineer. The text describes the building technique and construction; there are many excellent photographic illustrations, including plans and elevations, of the various individual auditoriums which make up this building.

**OUTLINES OF THE HISTORY OF ARCHITECTURE.** *By Rexford Newcomb. John Wiley & Sons, Inc., 440 Fourth Avenue, New York City. 193 pages. \$3*

The third part, Renaissance Architecture, revised and enlarged, of the original "Outlines," of which there are four parts. The text, originally prepared for use in the author's classes at the University of Illinois, is confined to the right-hand pages, while the pages on the left are blank, to be used for notes and sketches.



OVERPAGE: PHOTOGRAPH BY FAIRCHILD AERIAL SURVEYS, INC.

**AIRVIEW PLAN OF COUNTRY ESTATES  
AT BERNARDSVILLE, NEW JERSEY**

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# THE ARCHITECTURAL RECORD

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AIRVIEW PLAN OF COUNTRY ESTATES AT BERNARDSVILLE, NEW JERSEY. Photograph by Fairchild Aerial Surveys, Inc.

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PLANNING THE INTERIORS. By William Muschenheim, Architect

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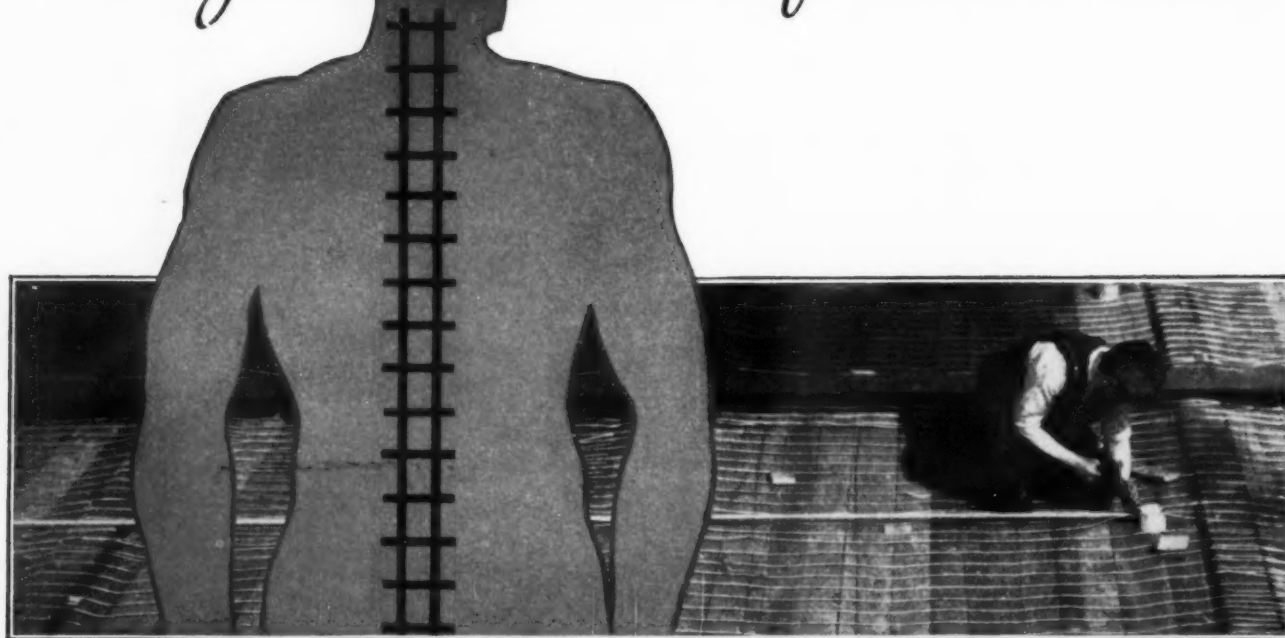
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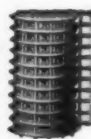


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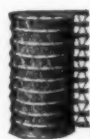
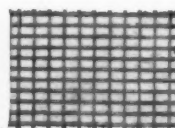
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perfected design—rein-

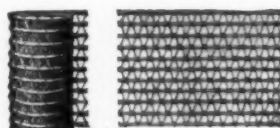
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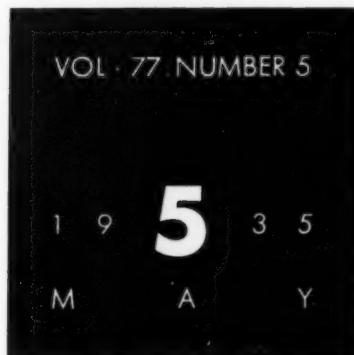
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# **T H E ARCHITECTURAL RECORD**

## **FURNISHING THE INTERIORS**

**By WILLIAM MUSCHENHEIM, Architect**

**T**he purpose of all domestic architecture is the provision of spaces for living, sleeping, eating, reading, studying and entertaining. These spaces have to be furnished, and this can be done either by haphazardly filling a room with chairs, tables and lamps, or—more desirably—by integrating the furnishings with the whole architectural scheme.

In considering any particular space, we have to deal with certain elements which will determine the design or selection and arrangement of furniture. Such are wall areas, windows and other openings, all of which are variables in most instances. Consequently, the design problem consists of choosing and grouping the furniture in relation to these elements so that fullest use can be made of their potentialities. Only in this way can the best results be obtained in convenience.

Furniture available on the market, and designed with respect to modern manufacturing technique, modern materials and modern ideas of comfort, may fit in part.

This line is limited, however, and certain pieces should be specially designed. It is not necessary, although sometimes desirable, that such pieces be built into the room. As a rule, it is more practical to design demountable units so that future arrangements can be made. Lighting fixtures and mechanical appliances, such as telephones and radios, can often be incorporated in the furniture designs. Furniture coverings, floor coverings and curtains, the colors of walls and ceilings, the wood and metal finishes should then be chosen so that the entire room scheme will be harmonized and articulated, and made a suitable background for human occupancy as well as for movable objects such as books, plants, pictures and china.

The range of possible combinations is limitless. If carefully studied for proportions and spatial interrelations, the final result will be as pleasing as any good work of architecture. The furniture and the architecture will, in fact, be each a part of the other.

# PORTFOLIO

OF APPLIED DESIGN

GERMAN HOUSING EXPOSITION IN MUNICH . . CHILDREN'S ROOM





DINING ROOM . . DESIGNED BY WOLFGANG VON WERSIN, ARCHITECT





WRITING ROOM

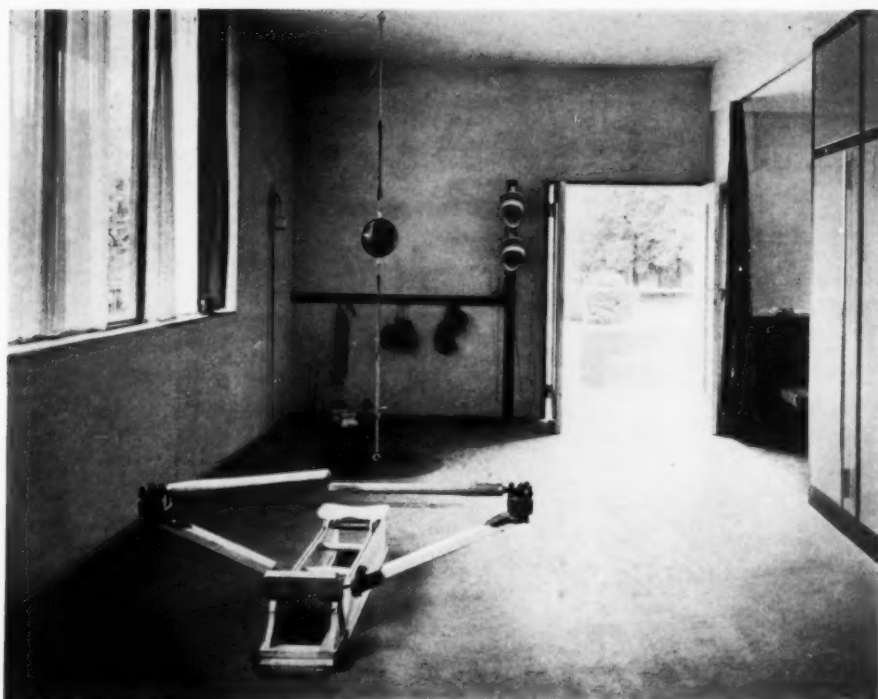
TWO ROOMS AT GERMAN HOUSING EXPOSITION IN MUNICH — DESIGNED BY WOLFGANG VON WERSIN



BACHELOR'S ROOM

A GYMNASIUM  
IN AVIATOR'S HOUSE

MILAN BUILDING  
EXPOSITION — ITALY



APARTMENT  
IN NEW YORK

BY WILLIAM  
MUSCHENHEIM  
ARCHITECT





CONVERTIBLE TABLE



*Photograph by Hedrich-Blessing Studio*

Table measures 12" x 33" closed, 64" x 33" open. Solid oak base has two drawers lined for silver, one drawer for linen, and a cabinet for bottles or toaster. Plywood oak top, finished natural with colorless lacquer. (Also made in gray-stained oak.)



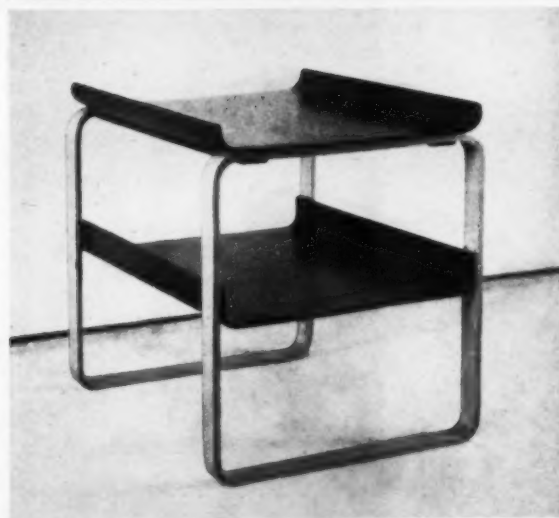
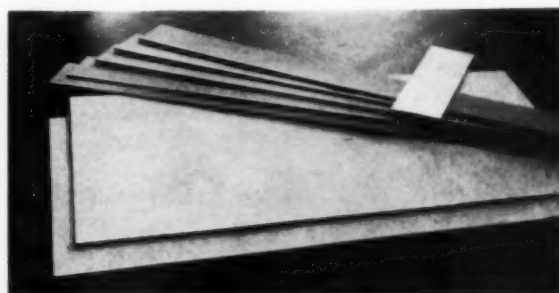
GILBERT ROHDE, DESIGNER

Bent wood chairs have no glued joints at points of stress. They are made of beech, finished to match oak and covered in white lacquered fabric. (Also made with frames finished in colored lacquer.) Room colors: brown wallpaper and dark brown carpet.





PRESSED PLYWOOD FURNITURE  
A. AALTO, ARCHITECT, FINLAND







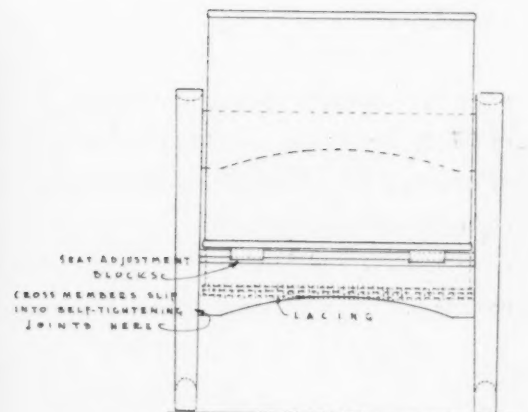
## AIRLINE CHAIR OF WOOD BY KEM WEBER

The two upper horizontal rails are not constructed as a solid frame, but get their strength through a logical transformation of stresses. The rear block of the upper rail is structurally solid with the rail and as it moves down when pressure is applied, the distance between the lower end of the block, where the second rail is located, and the front of the chair is decreased. There is an open space between the lower rail and the block to allow free movement. With a pressure of about 300 pounds the space is closed, transforming the breaking stress into tension on the upper rail and compression on the lower.

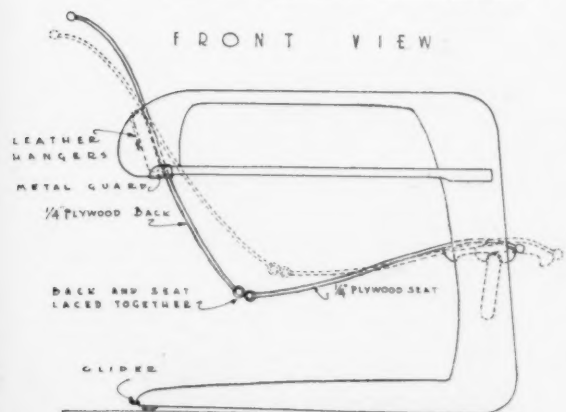
This principle in connection with the bow construction of hickory lamination on the tension side of all surfaces is said to give this chair strength far out of proportion to the lightness of the individual parts.



(Photographs by Will Connell)



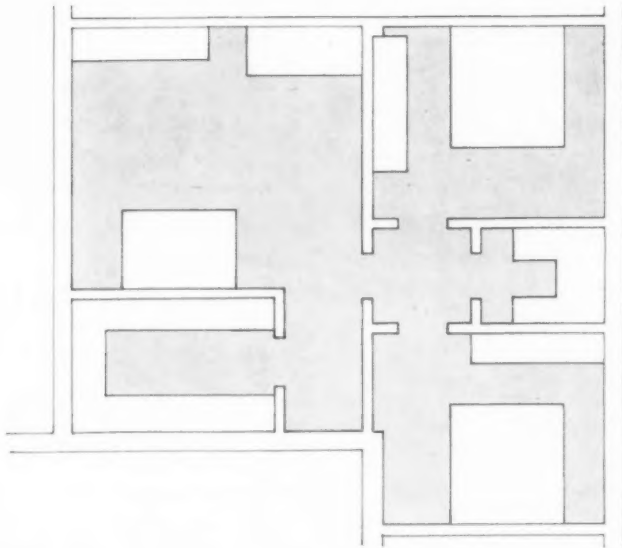
FRONT VIEW



SIDE VIEW



## THE ARCHITECTURAL RECORD



(3) FURNITURE LOCATION AND FREE AREAS. THERE IS AMPLE FREE SPACE AFTER THE PLACING OF NECESSARY FURNITURE. THE CONCENTRATED LIVING AREA MAKES FOR CONVENIENCE AND A MINIMUM OF PHYSICAL EXPENDITURE. THE SLEEPING AREA FORMS A SEPARATE SUITE.



(4) INTERIOR AND DAYLIGHT. WINDOWS WITH DESIRABLE RELATION TO ROOMS, PARTITIONS AND FURNITURE. CONSIDER DESIRABLE DAYLIGHT ON WORK SURFACES AND GOOD VISION FOR ALL PARTS OF A ROOM FOR BOTH CLEANLINESS AND TO FAVOR A GENERAL IMPRESSION OF CHEERFULNESS.

FURNITURE SHOULD BE LIGHT IN WEIGHT FOR MOVING.

Adjustable or convertible to different uses.

Small in bulk and correct in heights.

BUILT-IN FURNITURE REQUIRES LESS SPACE, IS EASIER TO KEEP CLEAN, GATHERS LESS DUST.

ANY PART OF FURNITURE THAT COMES IN CONTACT WITH HANDS, ARMS, LEGS, OR ANY OTHER PART OF THE HUMAN BODY SHOULD BE OF MATERIAL THAT IS WARM TO THE TOUCH.

HORIZONTAL SURFACES SHOULD BE OF WASHABLE, NON-TARNISHABLE MATERIAL, STAINLESS, FIREPROOF (PROTECTED AGAINST CIGARETTES) AND COLOR-FAST.

COLOR IN FURNISHINGS SELECTED FOR PRACTICAL USE, NON-GLARING, RESTFUL TO EYES, INTENSE COLORS RESTRICTED TO PARTS WHERE ATTENTION SHOULD BE ATTRACTED.

AVOID DUST-GATHERING CORNERS AND SURFACES. AVOID ROUGH SURFACES AND HORIZONTAL SURFACES ABOVE EYE LEVEL.

AVOID SHARP EDGES AND CORNERS.

CEILINGS WHITE OR IN PALE SHADES TO REFLECT LIGHT. WALLS OF CLEAR COLORS OR NEUTRAL SHADES.

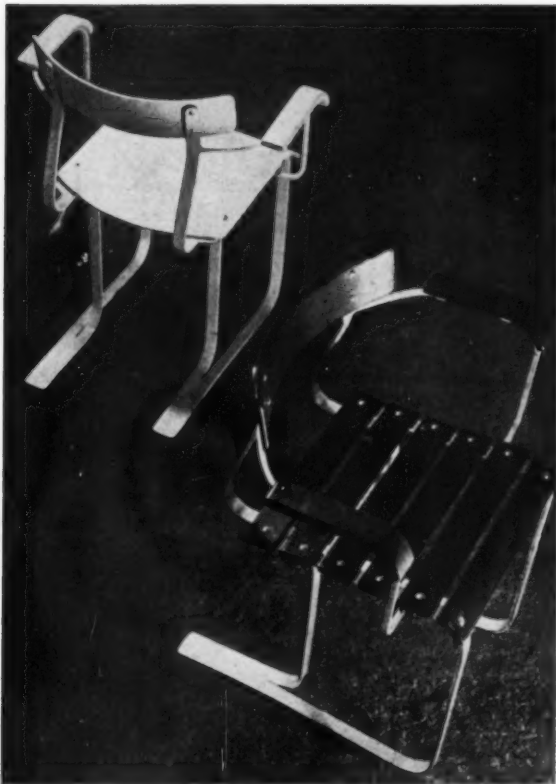
FLOOR COVERINGS WITHOUT PATTERN AND OF SHADES SUCH AS TAUPE, GRAY AND SAND.

WALLS SMOOTH, HARD AND OF SANITARY FINISH.

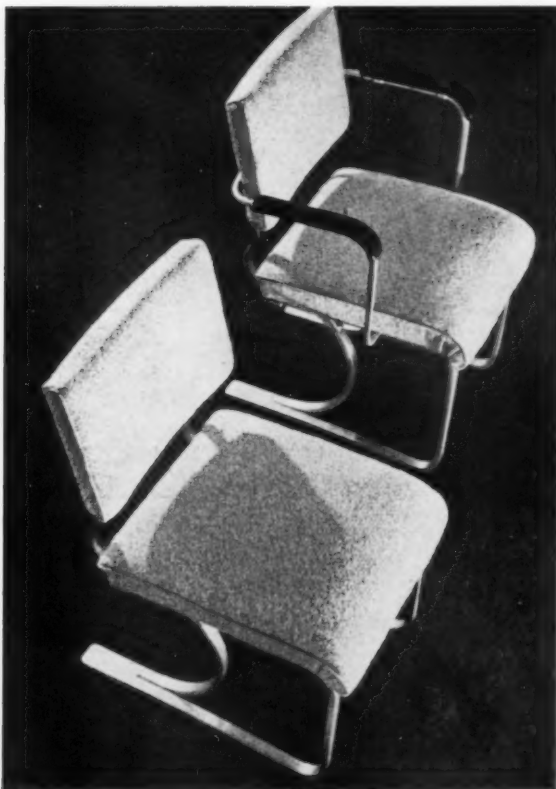
Hard plaster, plywood panels, made in wall-board sizes, which can be varnished, stained or waxed; fabric; plastic materials.

## EFFICIENCY OF DWELLING PLANS





**CHAIRS WITH ARM RESTS**  
 1 STEEL FRAME AND OF MINIMUM COST.  
 2 CHAIR OF STEEL, TREATED SURFACE, SLAT SEAT,  
 SUITED TO PORCH OR GARDEN.



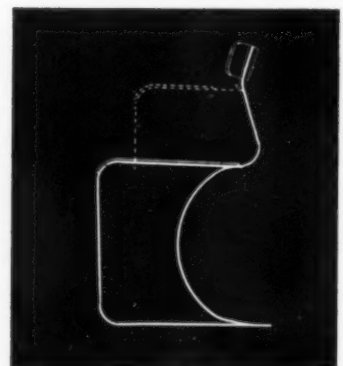
**UPHOLSTERED CHAIRS** WITH AND WITHOUT ARM REST FOR GENERAL USE IN HOUSE. FRAME OF STAMPED ALUMINUM, NON-CORRODING SURFACE, WATERPROOF FABRIC.

## CHAIR DESIGNS BY MARCEL BREUER, ARCHITECT

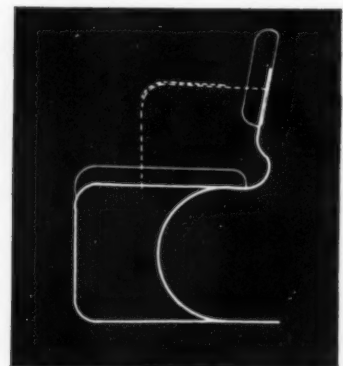
The chairs illustrated were submitted in an international competition for the best aluminum chairs of the world. Two independent juries unanimously awarded the first two prizes to the executed designs by Marcel Breuer.

Aluminum was previously considered too soft and brittle for the structure of furniture. With a new structural system involving the stamping of metal as flat parallel springs, the desired strength was attained.

These chairs were designed primarily for comfort with extreme simplification in shape. They are unusually light in weight; are of homogeneous material with an integral surface that does not stain.



**DIAGRAM OF CHAIR** DESIGNED FOR RESTAURANTS AND OFFICES.



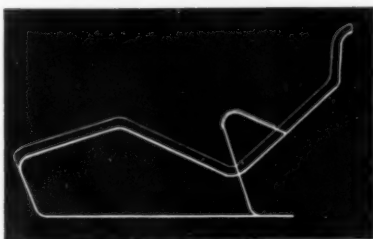
**SECTION OF CHAIRS** AT LEFT.



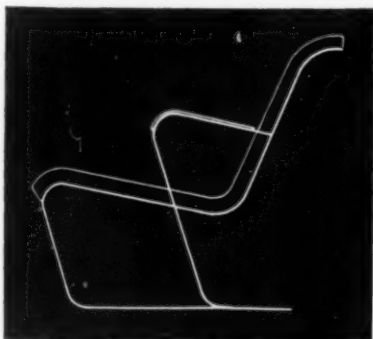
DETAIL OF HEADREST.



RECLINING CHAIR FOR LIVING ROOM AND PORCH. THE SAME MODEL USED FOR GARDEN TERRACE IS LIGHTER IN WEIGHT AND HAS WATERPROOF UPHOLSTERY, ALUMINUM OR STEEL FRAME.



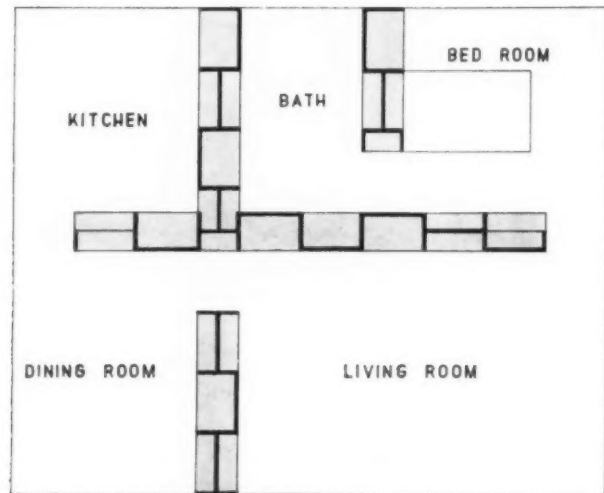
SECTION OF RECLINING CHAIR FOR RESIDENCE INTERIOR AND PORCH.



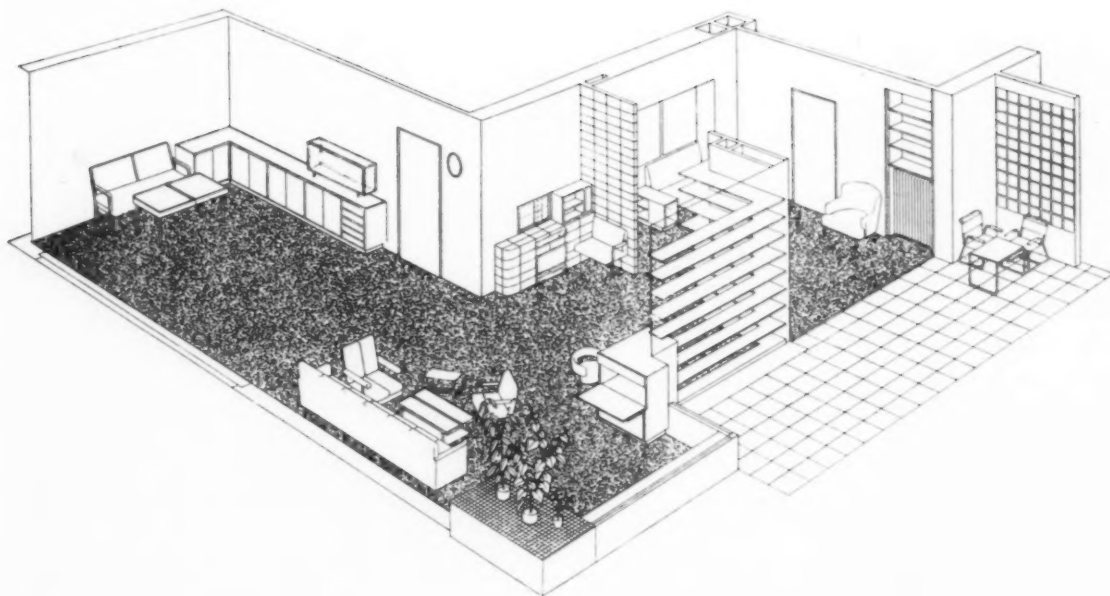
SECTION OF CHAIRS AT RIGHT.



CHAIRS DESIGNED FOR GARDEN AND PORCH USE, WATERPROOFED UPHOLSTERY, NON - CORRODING SURFACE FOR STEEL OR ALUMINUM FRAME.

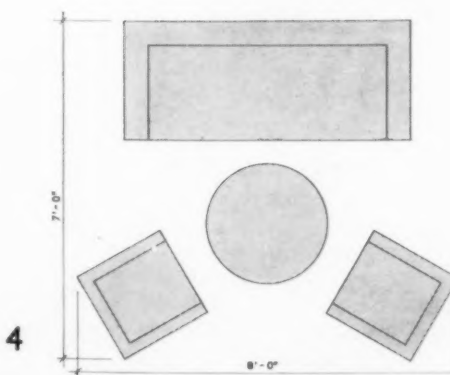
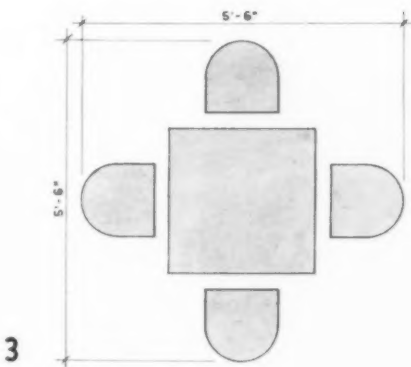
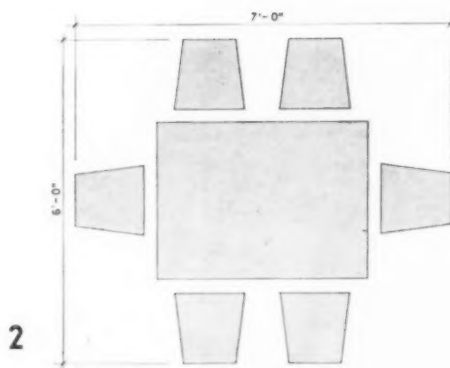
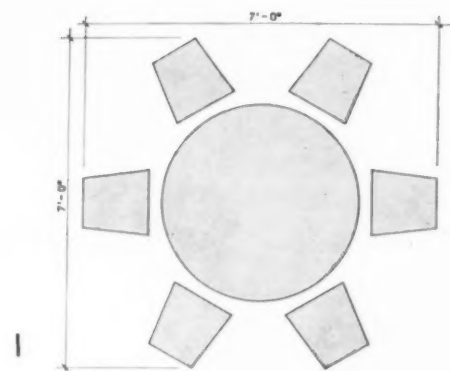


**FLOOR PLAN** IN WHICH ROOMS ARE SUBDIVIDED BY CLOSETS AND CABINETS OF STANDARD SIZE, INSTEAD OF BY PARTITIONS. SUCH AN ARRANGEMENT CAN BE ECONOMICAL TO CONSTRUCT AND CAN GIVE UNITY OF APPEARANCE TO ROOMS. THE ARRANGEMENT OF ROOMS CAN BE READILY CHANGED.



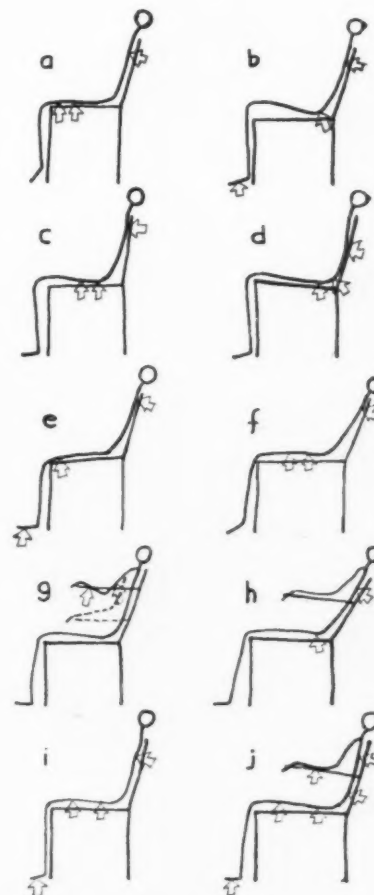
**ISOMETRIC OF APARTMENT.** LIVING ROOM AND HALL COMBINED, WITH EASY ACCESS TO TERRACE. MOVABLE AND STATIONARY FURNITURE ARE IN CLOSE RELATIONSHIP. THE FURNITURE GROUPS CREATE AREAS FOR READING, ENTERTAINING AND WORK. L. KOZMA, ARCHITECT, FROM "L'ARCHITECTE," PARIS.





IN PLANNING ROOMS CONSIDERATION IS GIVEN TO THE AREA REQUIRED FOR FURNITURE WHEN IN USE. THE DIMENSIONED AREAS AT THE LEFT ARE FOR COMBINATIONS OF CHAIRS AND TABLES. The designer of a dining room arrangement usually allows 2 feet for clearance between chair back and wall or from chair back to other furniture.

- (1) Dining table 4'-0" in diameter requires a room 11'-0" in width as minimum.
- (2) Rectangular table of same seating accommodation requires 6-foot width for chairs and table.
- (3) Required floor area for bridge table with chairs.
- (4) The conventional grouping of settee, smoking table and chairs requires 7' x 8' with 4 additional feet needed for comfortable width.



DIAGRAMS OF CHAIRS IN RELATION TO POSTURES. PART OF INVESTIGATION TO DETERMINE DESIRABLE AND COMFORTABLE CHAIR HEIGHTS, DEPTHS, AND SLOPE FOR SEAT AND BACK. RESEARCHES FOR PROTOTYPE OF CHAIRS, GOVERNMENT BUREAU OF INDUSTRIAL ART, JAPAN. FROM "KOKUSAI-KENCHIKU" MAGAZINE.



*Photograph by Hedrich-Blessing Studio*

APARTMENT OF WILLIAM ROSENFELD  
IN CHICAGO — DESIGNED BY DONALD DESKEY

# NON-FEDERAL LOCAL PUBLIC WORKS

**T**he greater part of this issue is devoted to non-Federal local public works. These consist of building and engineering projects undertaken by States and their political subdivisions—counties, cities, school districts and so on. Non-Federal local public works, being initiated, designed and constructed by local political action through local professional and business channels merit preferred consideration as a means of stimulating recovery in the building industry. They are real estate improvements which, supplying new or superior communal services, tend to attract population or business and, consequently, to promote private real estate activity.

Under authority of Title II of the National Industrial Recovery Act, approved by the President on June 16, 1933, the Public Works Administration has made loans at 4 per cent and granted subsidies of 30 per cent of the cost of labor and materials for non-Federal local public works. Elsewhere in this issue will be found a list of the types of work financed. The list is based upon a press release of some 90 pages itemizing all non-Federal public works financed wholly or in part by PWA during the 21 months of its existence, up to April 1, 1935.

A total of \$747,757,000 in loans and grants had been made to local public bodies for 4,040 projects completed or under construction. PWA has recently been reselling at a profit through the Reconstruction Finance Corporation some of the bonds accepted as security for loans and it is estimated that municipalities which applied for grants only have marketed about \$40,000,000 in bonds to cover the cost of projects above the grants.

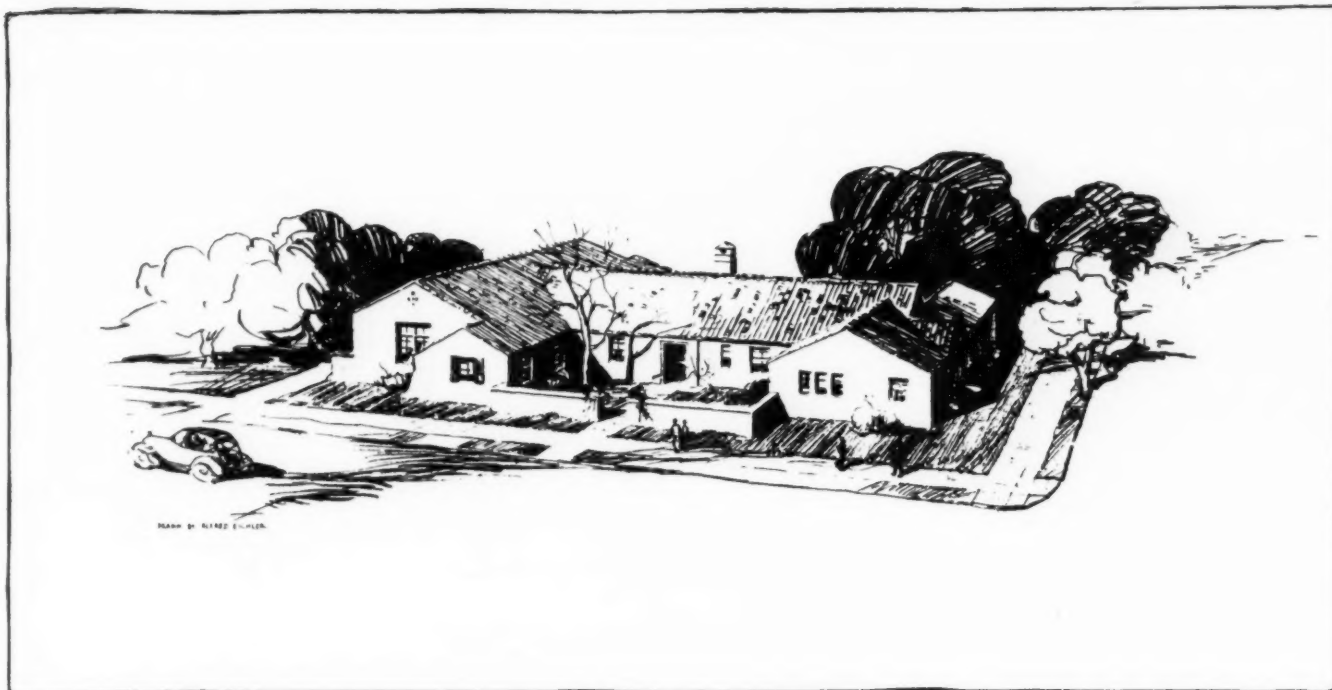
In view of the improvement which has taken place in the bond market, it seems likely that under the Work-Relief Act approved by the President on April 8, PWA may purchase a smaller proportion of bonds than it did under the old program and make a larger proportion of grants. At any rate, the Work-Relief Act omits the provision which limited a grant to 30 per cent of the cost of labor and materials. Legally the grant may now cover the entire cost of a project. A statistical comparison of the old and the new program is given on another page.

Practically all of the non-Federal local public works shown in this issue were designed by architects. Wherever a local improvement is needed there is a double advantage to tax payers in having the work done as part of the PWA program. There is, first, a low financing cost and, secondly, a reduction in the local cost of relief through reemployment. In many communities groups of architects have as citizens shared in the preparation of community plans and indicated how commissions for architectural services on individual jobs may be equitably distributed. A typical procedure, followed in San Diego, Calif., is described by William Templeton Johnson.



# TYPES OF NON-FEDERAL LOCAL WORKS CONSTRUCTED UNDER TITLE II OF THE NATIONAL INDUSTRIAL RECOVERY ACT APPROVED JUNE 16, 1933

Abattoir	Dam	Housing	School Garage
Administration Building	Deaf-Dumb Institution	Hydrants	Schools
Agricultural Building	Detention Building	Incinerator	Science Building
Airport	Dining Hall	Industrial Building	Sea Wall
Alleys	Disposal Plant	Infirmiry	Service Buildings
Almshouse	Dock Improvement	Irrigation	Ship Channel
Archives	Dormitory	Jail	Shop
Armory	Drainage	Juvenile Court	Shop Building
Arts Building	Economics Building	Laboratory	Sidewalks
Assembly Hall	Electric Distribution	Laundry	Smoke Stack
Asylum	Electric Plant	Library	Sprinkler
Auditorium	Equipment Building	Locker Room	Stadium
Auditorium Gymnasium	Filtration Plant	Machine Shop	State Building
Auditorium Library	Fire Alarm System	Market	Stock Barn
Barn	Fire Exits	Mausoleum	Storehouse
Barracks	Fire-Police Station	Medical Building	Storm Sewers
Bathing Beach	Fire Protection	Memorial Building	Street Lights
Bell Tower	Fire Station	Municipal Building	Streets
Board Walk	Flood Control	Museum	Sub-Station
Boys' Home	Garbage Disposal	Nurses' Home	Subway
Bridge Approach	Gas Distribution	Park Development	Swimming Pool
Bridges	Gas Mains	Passageway	Terminal
Canal	Gas Plant	Penal Institution	Town Hall
Capitol Annex	Golf Course	Physical Building	Training School
Car Lines	Guard Rail	Pier Sheds	Tunnel
Cemetery	Gymnasium	Police Radio	University Buildings
City Hall	Hangar	Police Station	Viaduct
Civic Building	Harbor Improvement	Poor Farm	War Memorial
Club Building	Harbor Railroad	Prison Buildings	Ward Buildings
College Buildings	Health Building	Pump Plant	Warehouse
Comb. Sewer	Heat Power	Railroad Bridge	Water Building
Comfort Station	Heating System	Record Building	Water Meters
Community Building	High Schools	Reformatory	Water Pump
Cottages	Highway Bridge	Refrigeration Plant	Water Sewer
County Home	Highway Railroad Crossing	Reservoir	Water Tank
Courthouse	Highways	Roads	Watermains
Creamery	Home for the Aged	Sanitarium	Waterworks
Culvert	Horse Barn	Sanitary Sewers	Well
Curbs	Hospitals	School Buses	Well Pumps
			Wharf



Construction completed this year; reinforced concrete walls, cement plastered; tile roof.

DISTRICT X OFFICE BUILDING FOR THE DIVISION OF HIGHWAYS, STOCKTON, CALIFORNIA  
STATE OF CALIFORNIA DEPARTMENT OF PUBLIC WORKS—GEORGE B. McDOUGALL, STATE ARCHITECT

## ARCHITECTS DEVELOP A PROJECT FOR SAN DIEGO

About ten years ago San Diego, California, commissioned John Nolen, city planner of Cambridge, Mass., to make a general study plan for the development of the town. One of Mr. Nolen's recommendations was the construction of a civic center group on the water front which is controlled by the city under a grant from the state of California.

San Diego has a shabby, old civic hall and an entirely inadequate county court house forty years old and besides this, with the expansion of official functions, space has been rented by the city and county in various buildings throughout the city to such an extent that the yearly rentals amount to about \$45,000.

To remedy this condition and to house the offices of the city and county in adequate quarters, a joint committee was appointed by the city planning commission and the county planning commission to make recommendations for the development of a civic and county group. This joint committee proposed the utilization of the water front lines of the city for the develop-

ment of the civic center and studies were made for the general arrangement of a group of public buildings.

At this stage the local chapter of the American Institute of Architects offered its services to prepare without cost to the city and county preliminary plans for a city and county building with the idea of passing a bond issue and obtaining government aid under the Public Works Administration. Three architects were chosen by ballot by the San Diego chapter to prepare these drawings in consultation with the city administration and the planning commissions and they have been carried along far enough to make an intelligent estimate cost. No details are yet available as to the exact basis upon which the financing with the government will be consummated.

The San Diego chapter of the American Institute of Architects recently voted that the three members who donated their services for the preparation of the preliminary plans should be recommended to the city and county administrations for construction of the building if the financing is successfully carried out.

WILLIAM TEMPLETON JOHNSON, *Architect*

# LOCAL PUBLIC WORKS: THE NEW PROGRAM

By **L. SETH SCHNITMAN**  
Chief Statistician  
F.W. Dodge Corporation

Since July 1933 about 4,000 non-Federal construction projects—buildings and public works of states and their subdivisions—have been made possible by PWA funds. These are of almost every description, from airports to zoo buildings, and were additional to some 15,000 so-called Federal projects that were undertaken by the national government from the same appropriations. (This article treats only with non-Federal construction.)

About 1,200 non-Federal projects are already completed. In fact, roughly three-fourths of the total number of local projects are (May 1) either completed, under construction, or under contract. On the basis of estimated cost, less than half of the total old non-Federal program has reached these stages. Thus, of an estimated total cost of about \$1,080,000,000 that has been made possible by PWA loans and grants, only about \$500,000,000 has actually been under construction.

A new program of non-Federal construction is now being undertaken. \$900,000,000 of Federal funds have been appropriated as compared with about \$765,000,000 under the old. Should the new funds be allotted in the same manner as the old, this would produce a total of local public improvements of about \$1,275,000,000. Together, the old and the new programs have an indicated size of about \$2,300,000,000. Federal funds under the new legislation will be available until June 30, 1937.

All charts are based upon data from the Public Works Administration and Dodge Statistical Research Service.

## LOCAL IMPROVEMENTS DOT THE NATION . . .

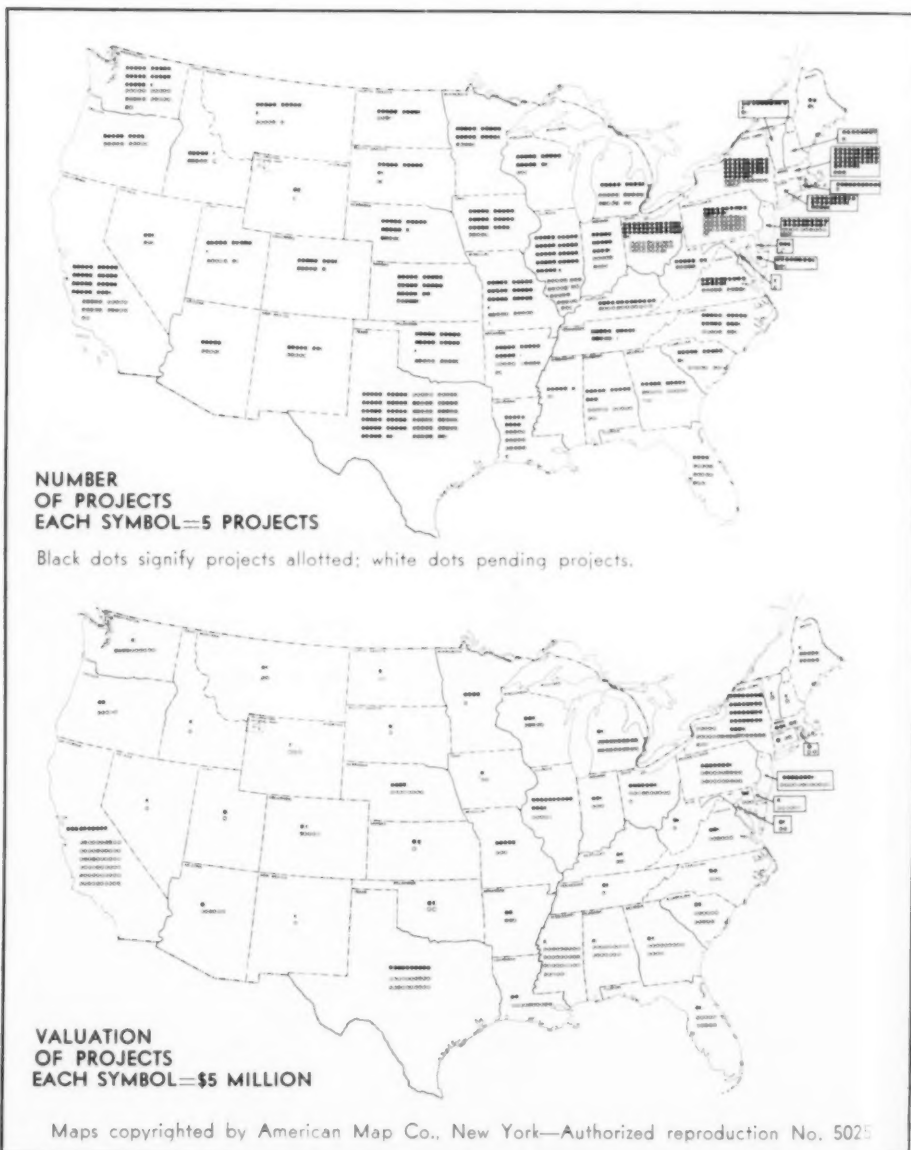
Under the provisions of the NIRA (Act of June 16, 1933) the President was authorized, through the Administration of Public Works, "to make grants to States, municipalities, or other public bodies for the construction, repair, or improvement of any such project (public works), but no such grant shall be in excess of 30 per centum of the cost of the labor and materials employed upon such project."

As a result of this legislation no State has been without allotments, in the form of loans and grants, for the construction of what will henceforth be referred to as non-Federal or local public projects. PWA allotments for these projects exceeded \$750,000,000. Though an additional amount of approximately \$200,000,000 was allocated for construction loans to railroads, much of which incidentally went into new equipment, none of this total will be considered here. Roughly one-third of the PWA construction fund was earmarked for loans and grants to finance the construction of projects of States, municipalities, and other local public bodies.

In the first map each symbol represents 5 non-Federal projects or fraction thereof; in the second map each symbol represents \$5 million or fraction thereof. On each map the black dots signify actual allotments; the white dots designate projects on which planning was well advanced when, for lack of funds, allotments under the old program were stopped.

On the following pages are given some of the more salient features of the old program. Likely developments under the new program which has been provided for in the Emergency Relief Appropriation Act of 1935 (Act of April 8, 1935) are also portrayed. Under this legislation the sum of \$900,000,000 has been set aside for "loans or grants, or both, for projects of States, Territories, possessions, including sub-divisions and agencies thereof, municipalities, and the District of Columbia, and self-liquidating projects of public bodies thereof, where, in the determination of the President, not less than 25 per centum of the loan or the grant, or the aggregate thereof, is to be expended for work under each particular project."

There is no limit as to the size of the grant whereas under the old law grants were limited to 30 per cent of the cost of materials and labor.





## LOANS AND GRANTS UNDER OLD PROGRAM

Of the approximate total of \$765,000,000 which was allotted for loans and grants by the PWA to further the construction of non-Federal projects (exclusive of railroads), some \$505 million, or roughly two-thirds of the aggregate, represented loans to public bodies on their bonds at interest of 4 per cent. The remaining amount, approximating \$260 million, represented grants.

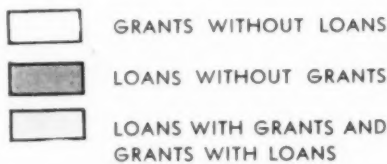
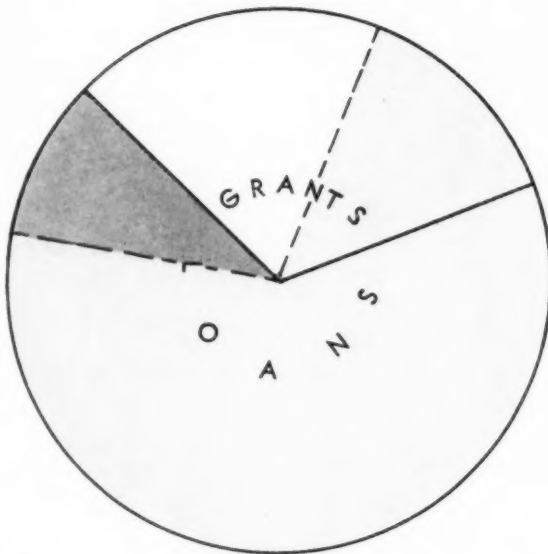
According to Circular No. 1 of the Federal Emergency Administration of Public Works the test for eligibility for a grant was "the social and economic significance of the project and its relative importance in the comprehensive national program of public works contemplated by the act, and the extent its construction will provide employment and purchasing power in the vicinity."

The regulations also stated: "The following classes of projects will be preferred as to the grant: (1) waterworks projects not unduly burdening the community with debt and necessary for its health and convenience; (2) sewer projects of the same character; (3) sewage disposal projects sufficiently comprehensive to render a river or lake system, used by many communities, safe as a water supply, and other sewage disposal projects; (4) other projects which, like the foregoing, are regenerative, i. e., tend to stimulate further projects, such as highways, bridges, and tunnels, opening of new territory for homes and industry, projects for the transmission of electrical energy into territories not now served. The President, in determining whether to allow or withhold the grant, will also consider to what extent the budget of the applicant is balanced or in process of balancing and will prefer those public bodies which put their finances in order."

In the light of these regulations promulgated in July 1933, it is of interest to note that of the 1,200 or so non-Federal projects that are already completed, approximately 23 per cent are water supply systems; some 20 per cent are streets and local highways; about a like percentage represents educational facilities; about 18 per cent are sewers and sewage disposal plants; the remainder are miscellaneous types.

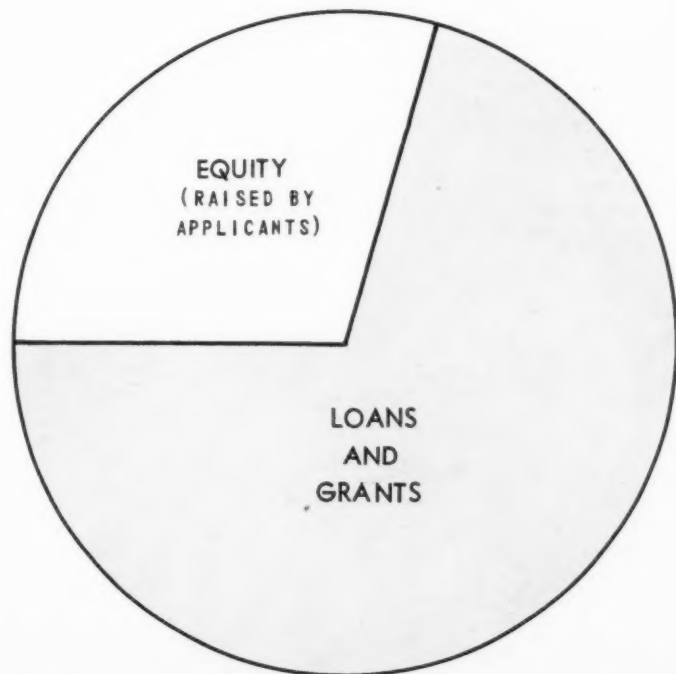
It is also of interest that, of the total allotment for grants amounting to about \$260 million, little more than \$100 million represented grants to public bodies which did not find it necessary to borrow from the PWA. Ostensibly, these public bodies either had their own funds or could sell their bonds in the market on a basis more attractive than that offered by the PWA.

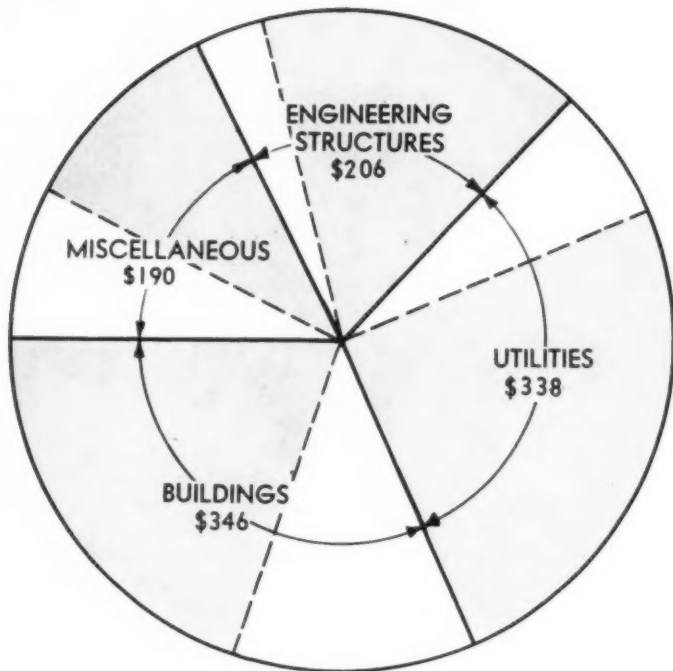
Of the total amount of loans allotted approximately 85 per cent was in connection with grants, the remainder being loaned to public and quasi-public bodies, such as limited-dividend housing projects and toll bridges, which under the law were not eligible to grants.



### DISTRIBUTION BETWEEN FEDERAL AND LOCAL MONEY

If all projects for which loan and grant allotments were made reach fruition, some \$1,080 million of local construction and improvement projects will have been provided. From this it appears that local public bodies will have supplied approximately \$315 million as their share of the total cost. Thus for each dollar of Federal money, roughly 40 cents of local or equity money will have been provided, as raised either out of current revenues or bond sales or both. This applies generally but not necessarily for any community. The relationship between Federal money by way of loans and grants—and local or equity money is shown by the chart to the right. On the following page a further breakdown as between types of construction is given.





## OLD PROGRAM CLASSIFIED BY TYPES

In the chart to the left is pictured the approximate distribution of the major classifications of local or non-Federal construction which was made possible by the old program. The unshaded portions of the chart indicate the segments for which local or equity money has been or will be supplied under each major class; the shaded segments designate the total amounts for which Federal funds have been allotted. (No attempt has here been made to separate loans from grants.)

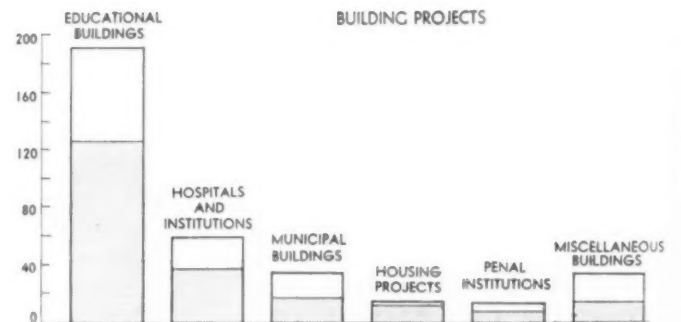
The figures denote millions of dollars and include, in each instance, both the Federal or PWA allotments and the local or equity money, the combined total of all of which, as has already been shown, approximates \$1,080,000,000.

Thus, of the total amount of probable construction, about 32 per cent represents building types, architecturally designed; almost a like percentage represents public utilities of all descriptions, exclusive of water power; almost 20 per cent will go into engineering structures, such as bridges, viaducts, tunnels and subways; and the remainder in miscellaneous types, chiefly of engineering designs.

## BUILDING PROJECTS . . . . .

Educational buildings formed by far the most important category of building types provided for by the PWA non-Federal allotments. Here, as above, the unshaded portions of the chart represent equity money locally raised, while the shaded segments designate PWA allotments, both loans and grants. On all building projects the borrower or the applicant hires the architect. Fees were usually 6 per cent of the cost of the project and include plans, specifications, preliminary sketches, supervision and necessary travel expenses.

In this chart, municipal buildings embrace city halls, courthouses, fire and police stations, and armories. Housing projects include both limited-dividend housing and sundry other residential building erected as incidental to other projects. Under the miscellaneous classification all other building types not specially shown have been grouped.



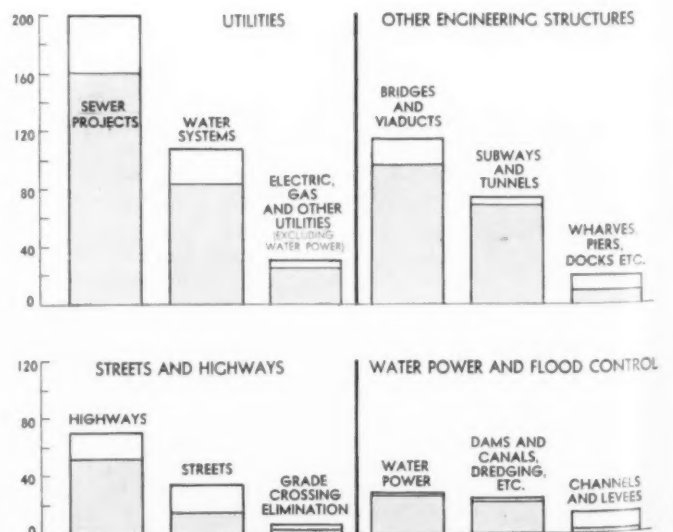
## OTHER CLASSIFICATIONS . . . . .

Here is given a detailed classification of the remaining major construction classifications, with the unshaded portions of the bars likewise indicating local or equity money raised by the applicants.

Just as educational facilities outranked all other classes in the case of building types, so, in the engineering division, the utilities outranked all other types. Of the utility types sewer projects are the most important, exceeding somewhat in total estimated cost the value of educational buildings. It is of interest, too, that for sewers less equity money, both in the aggregate and relatively, is to be raised by the applicants than is the case in educational buildings.

For water systems, with a total estimated cost almost double that for hospitals and institutions, the equity money in each is just about on an even base. For municipal buildings, with a total approximate cost not far different from that for electric, gas and other utilities (exclusive of water power), the equity money is about twice as great.

A fairly complete picture of the probable results under the existing program construction of non-Federal projects by major divisions has thus been afforded.



## APPRAISING THE NEW PROGRAM

Since the old program is still a considerable distance from completion, it is obviously difficult even to attempt an approximation of the new. Two facts, however, stand out prominently under the old program and may be helpful in assaying the new program:

(1) Grants approximated \$260 million, while loan allotments were about \$505 million, making an approximate total of \$765 million in PWA allotments for non-Federal projects.

(2) These allotments are estimated to produce a construction total of approximately \$1,080,000,000, allowing for equity money.

All that is known about the new program is that the law provides for \$900,000,000 (see page 322) and even here the law states that "not to exceed 20 per centum of the amount herein appropriated (\$4,000,000,000) may be used by the President to increase any one or more of the foregoing limitations (including the \$900,000,000) if he finds it necessary to do so to effectuate the purpose of this joint resolution."

With these difficulties in mind, the best basis for appraising the new program is probably to be found in the likely results under the old which are now fairly well defined. The chart indicates the old program in solid outline, superimposed on which is the new program in broken outline in the ratio of \$765 million to \$900 million. This has been done on the premise that the system of loans and grants under the old program will be substantially followed in the execution of the new one.

In the lower chart the same procedure was followed. In this instance the broken circle includes the equity money on the assumption that the same proportion of equity to loans and grants as in the old program will prevail in the new. Thus the aggregate estimated cost of local improvements under the new program, on this assumption, would be approximately \$1,275,000,000, as against \$1,080,000,000 under the old. On this basis, the new program would be just about the size of the old, inclusive of loans to railroads for construction and equipment purchases.

The Executive Committee of the Construction League of the United States recently recommended to the Administration that it follow a schedule of diminishing grants with reference to the \$900 million fund authorized in the new law. Under this schedule it was suggested that no loans be made at all by the Federal government and that the entire fund be given as grants according to the following:

- (1) 50 per cent of the actual cost of the local projects where work thereon has been undertaken before December 31, 1935.
- (2) 30 per cent of the actual cost of the projects where work has been undertaken in 1936, but before September 30.
- (3) 20 per centum of the actual cost of the projects where work has been undertaken thereafter.

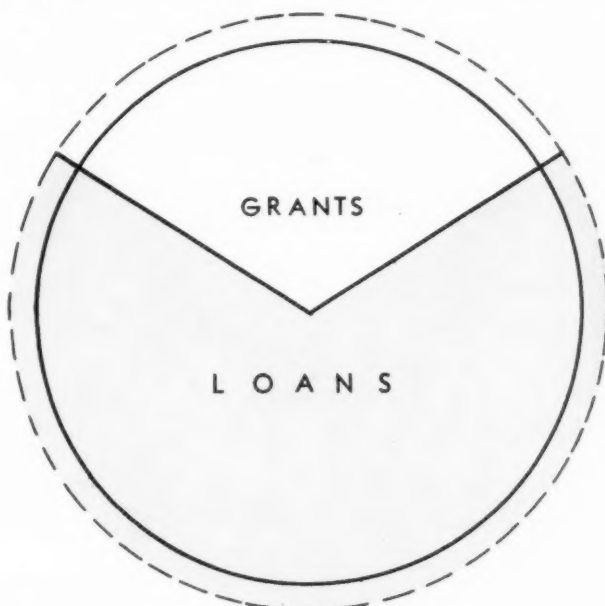
In this manner, the League suggests, \$900,000,000 of grants would mean a construction volume from two to three times the total possible under the old plan of loans and grants. Construction would be accelerated materially by the arbitrary time limits as set up in the above schedule on the diminishing scale of grants.

In his recent radio address, President Roosevelt stated that he will recognize the following six principles with respect to the new program and from these there is no indication that the President intends to accept the recommendations of the Construction League:

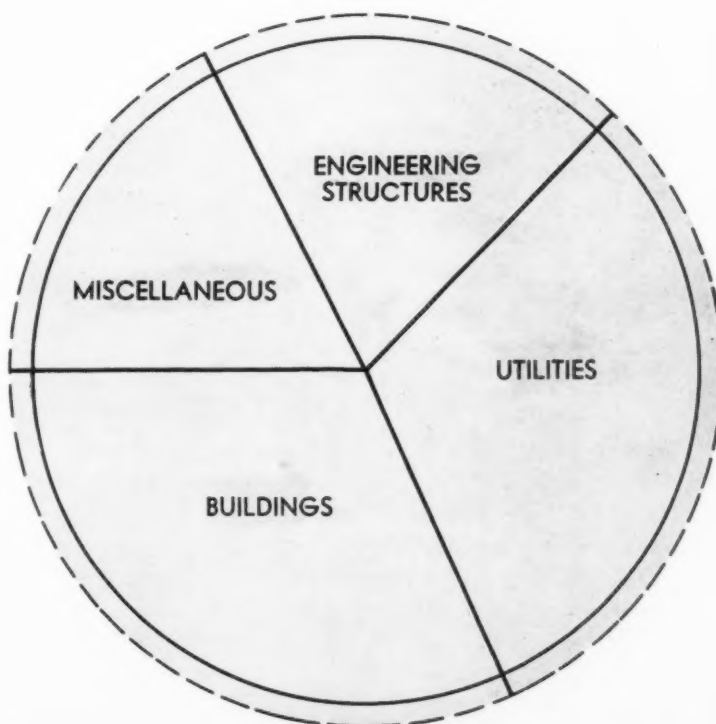
- (1) The projects should be useful.
- (2) Projects shall be of a nature that a considerable proportion of the money spent will go into wages for labor.
- (3) Projects which promise ultimate return to the Federal Treasury of a considerable proportion of the costs will be sought.
- (4) Funds allotted for each project should be actually and promptly spent and not held over until later years.
- (5) In all cases projects must be of a character to give employment to those on the relief rolls.
- (6) Projects will be allocated to localities or relief areas in relation to the number of workers on relief rolls in those areas.

## COMPARING THE OLD AND THE NEW

In charts below, the circle in solid line represents the old program, the circle in broken line represents the new.



TOTAL LOANS AND GRANTS



TOTAL CONSTRUCTION

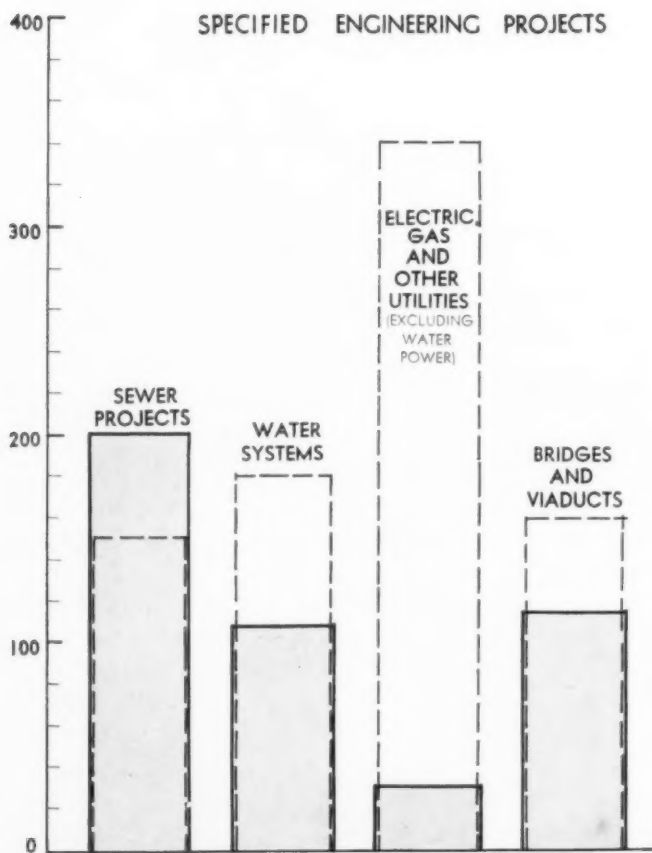
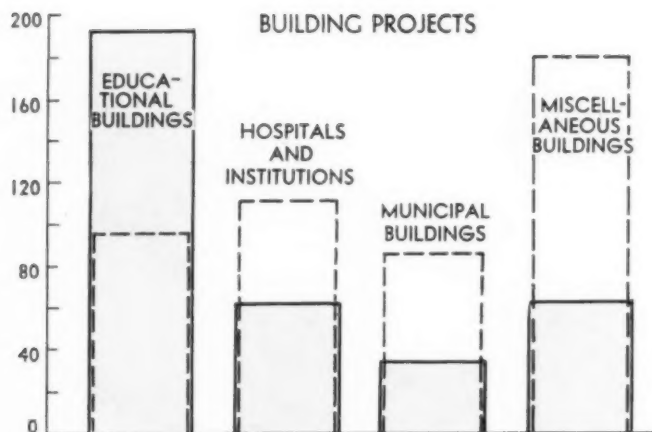
## PROBABILITIES UNDER THE OLD POSSIBILITIES IN THE NEW

Almost two billion dollars in applications were pending for non-Federal projects in the PWA when allotments under the old program were stopped more than a year ago for lack of funds. This probably represented projects with an estimated cost of at least \$2½ billions. For the most part these were well advanced as to planning and included some 2,500 individual jobs of practically every building and engineering type, and well distributed geographically.

On the basis of the inventory of potential construction projects undertaken in February of this year by the PWA, there were approximately 100,000 projects, chiefly non-Federal, estimated to cost in excess of \$15 billions on which construction is locally considered as desirable. PWA officials have been quick to indicate, however, that many of these could not qualify under existing stringent PWA requirements as to legality and financial soundness.

Somewhere between the extremes of \$900 million and let us say \$15 billion lies the probable answer to the question: How large is the new non-Federal program likely to be?

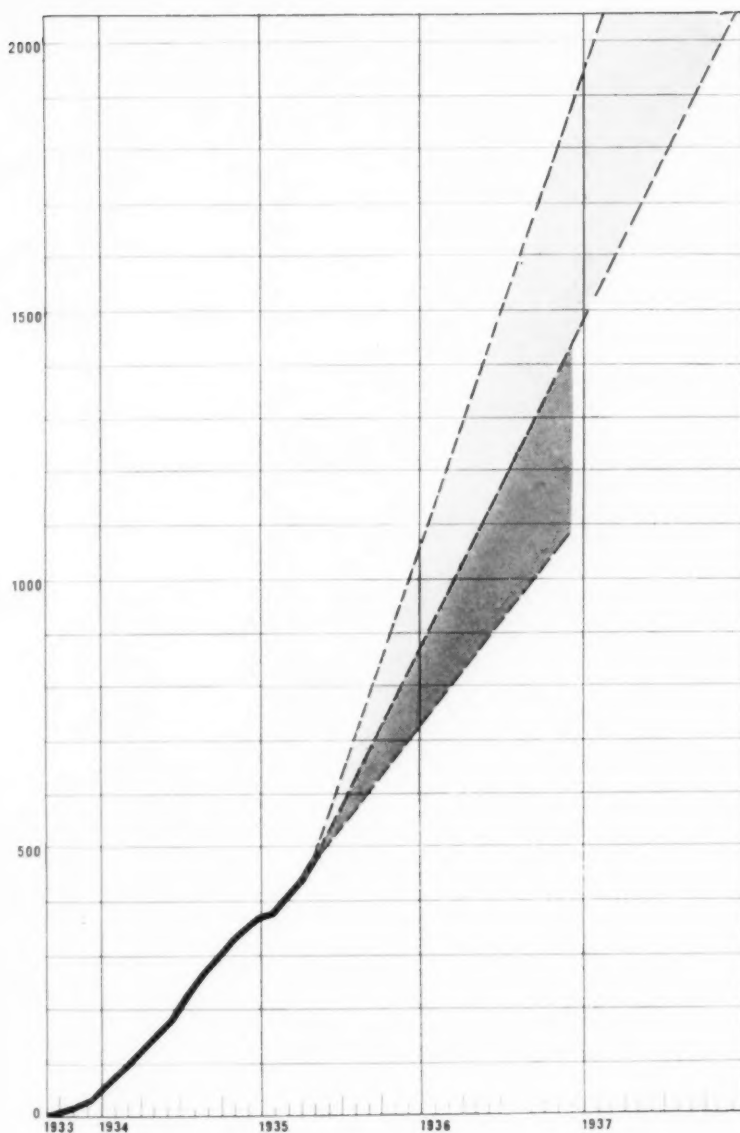
In an attempt to aid the reader in answering this question there is given in the charts to the left a comparison between the old non-Federal program and the new as it may unfold. The solid outline surrounding the shaded area indicates the estimated cost of the building types under the old; the broken outline represents the estimated cost of non-Federal buildings for which planning was well advanced when funds under the old program had all been allotted.



In the chart showing specified engineering projects the shaded portions, as explained above, likewise indicate the estimated cost of the projects under the old program. For mechanical reasons, not all engineering types have been shown; important omissions include local roads, flood control, reclamation, water works, dams, canals, channels, levees, and the like.

Singularly for both educational buildings and sewer projects the amount of planned structures likely to proceed under the new program was less than their respective estimated cost totals under the old non-Federal allotments. For electric, gas, and other utilities (excluding water power) planning had proceeded the furthest but it is here that actual construction is least likely to be materially different from results under the old program because of adverse court decisions with respect to municipally-owned gas and electric power plants.





## GENERAL CONCLUSIONS

As has been indicated elsewhere, roughly \$500 million of the estimated cost of all non-Federal projects made possible by the PWA program which was started in July 1933 is now either completed or under construction. More than half yet remains to get under way.

The solid line in the chart on this page represents the cumulative line of construction to May 1, 1935. This line is then arbitrarily projected on the basis of the growth indicated for the early months of 1935. On this basis of projection it would take virtually all of 1936—a period of 19 months—for the remaining projects under the old program to get under construction. The total would then be about \$1,080,000,000.

But now we have a new program which has just been authorized. If the line of construction on this program cumulates at the rate of the old, starting on May 1, it would take the remainder of 1935, all of 1936 and 1937 for the two programs to be either completed or under construction. The darkly-shaded segment between the

dash-lines indicates the increment added by the new only if it proceeds at the rate of the old.

Under the Act of April 8, 1935, however, the funds are available only until June 30, 1937. Hence, in order to fulfill the requirements of the legislation the new program of non-Federal construction projects would have to proceed much more rapidly than the old. For this reason the chart depicts, by the topmost dash-line of extension, the cumulative line of construction which would be formed were the current rate to continue on the old program through 1936 and the new program at twice the current rate beginning with May 1. The light shading indicates the effect of this hypothetical speeding-up, while both shaded areas together would indicate the increment due to the new program. This is all on the assumption that the \$900 million fund may be employed along approximately the same lines as the \$765 million under the old but is not intended as a forecast.



*Photographs by F. S. Lincoln*

# PUBLIC WORKS

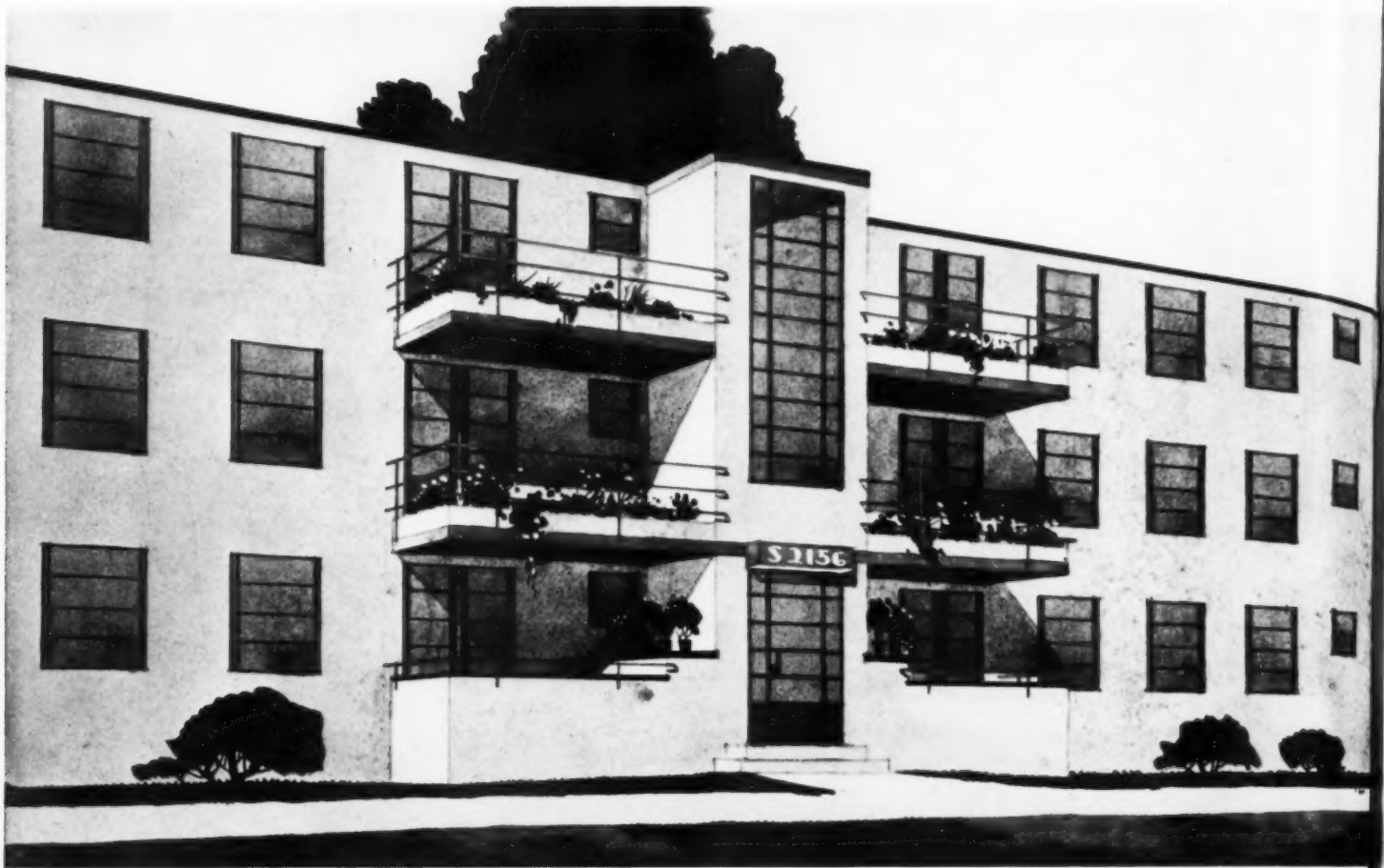
## LOW-RENT HOUSING

JUNIATA PARK HOUSING CORPORATION PROJECT IN PHILADELPHIA  
W. POPE BARNEY, ARCHITECT . KASTNER AND STONOROV, ASSOCIATES

Approximately 284 living units (1,085 rooms). PWA loan: \$1,039,000.







CEDAR-CENTRAL LOW-RENT HOUSING PROJECT IN CLEVELAND — A \$3,044,000 PWA DEVELOPMENT  
WALTER R. McCORNACK, JOSEPH L. WEINBERG, CONRAD AND TEARE, ASSOCIATED ARCHITECTS

ELLIOT PARK NEIGHBORHOOD—A PROPOSED LOW-COST HOUSING PROJECT  
FOR MINNEAPOLIS—STRAUS, DORR, BERSBACK AND CHAPIN, ASSOCIATED ARCHITECTS





## INDIAN SCHOOLS

(1) SAWMILL SCHOOL, SOUTHERN NAVAJO (ARIZONA)

(2) HOGAN DAY SCHOOL, NORTHERN NAVAJO — MAYERS, MURRAY AND PHILLIP, ARCHITECTS

Construction on the Navajo Indian Reservation in Arizona is being financed by a Public Works Administration allotment of \$950,000. The old Navajo architecture is being adapted to the construction of the new buildings. The same materials which the Indians have always used—mud, stones, sticks and logs—will be employed exclusively in the work. It is an old Indian tradition that there shall be no doors and windows on the north side of the hogans, and that the entrance door shall always face the east.



## SCHOOL BUILDINGS

THOMAS A. EDISON JUNIOR HIGH SCHOOL, LOS ANGELES — A. R. WALKER AND P. A. EISEN, ARCHITECTS  
(1) EXTENT OF PWA SCHOOL RECONSTRUCTION . (2) EXTERIOR OF COMPLETED SHOP BUILDING

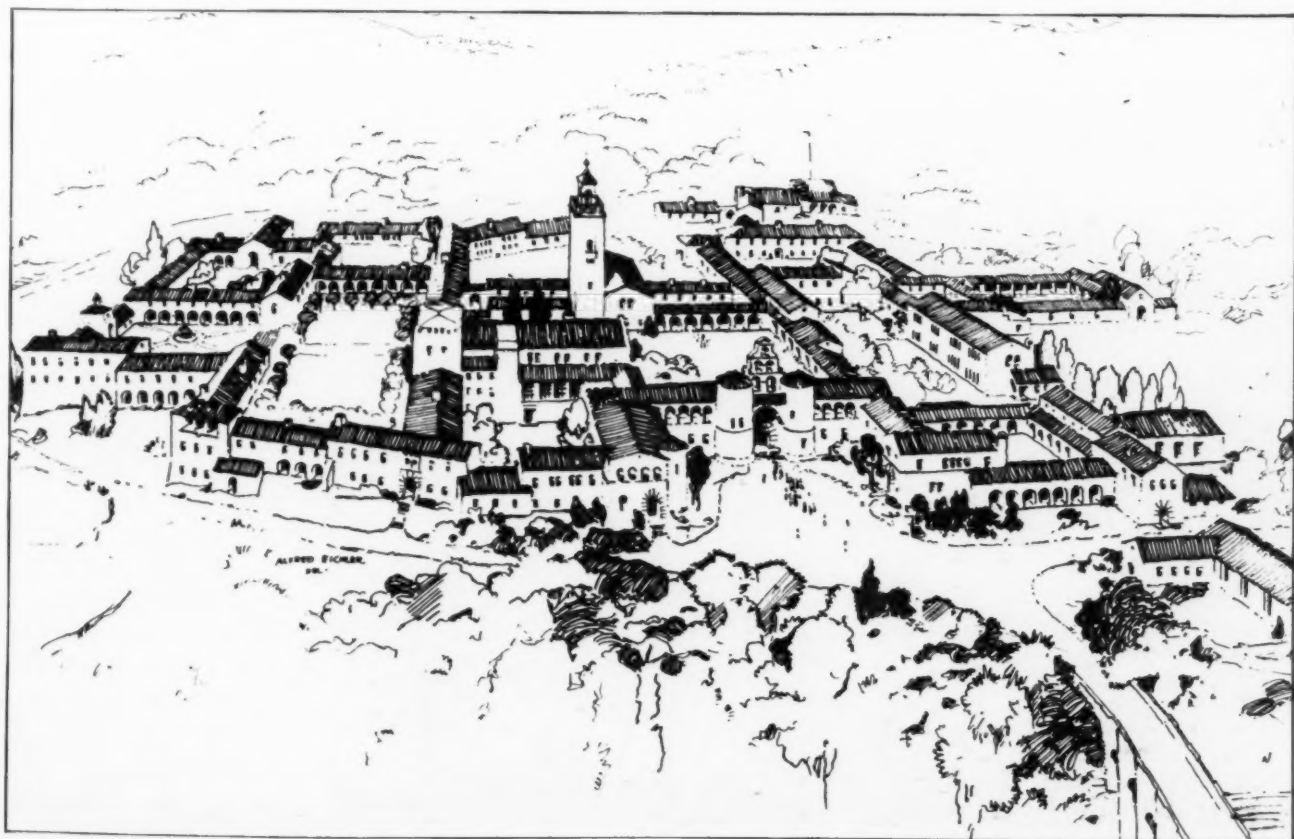




NEW DISTRICT GRADE SCHOOL  
BUILT BY THE GOVERNMENT AT  
BONNEVILLE DAM, 40 MILES  
EAST OF PORTLAND, OREGON

More than half the schools constructed in 1934 were financed by PWA allotments. Returns from State departments of education in 24 States show that 9,828 school building projects at an estimated cost of \$241,285,254 are needed in rural areas, and returns from 1,026 cities of 2,500 population and over, or 52 per cent of the number to which questionnaires were sent by PWA, show that 2,965 building projects at an estimated cost of \$384,713,768 are needed in urban areas.

NEW SAN DIEGO STATE TEACHERS COLLEGE — CALIFORNIA STATE DEPARTMENT OF PUBLIC WORKS  
PRELIMINARY STUDY SHOWING PROPOSED DEVELOPMENT — GEORGE B. McDOUGALL, STATE ARCHITECT





## HOSPITALS and INSTITUTIONS

NAVY HOSPITAL, PHILADELPHIA—WALTER T. KARCHER AND LIVINGSTON SMITH, ARCHITECTS



HOSPITAL BUILDING FOR  
THE McLEOD INFIRMARY  
FLORENCE, S. C.

LAFAYE AND LAFAYE  
ARCHITECTS  
F. V. HOPKINS, ASSOCIATE

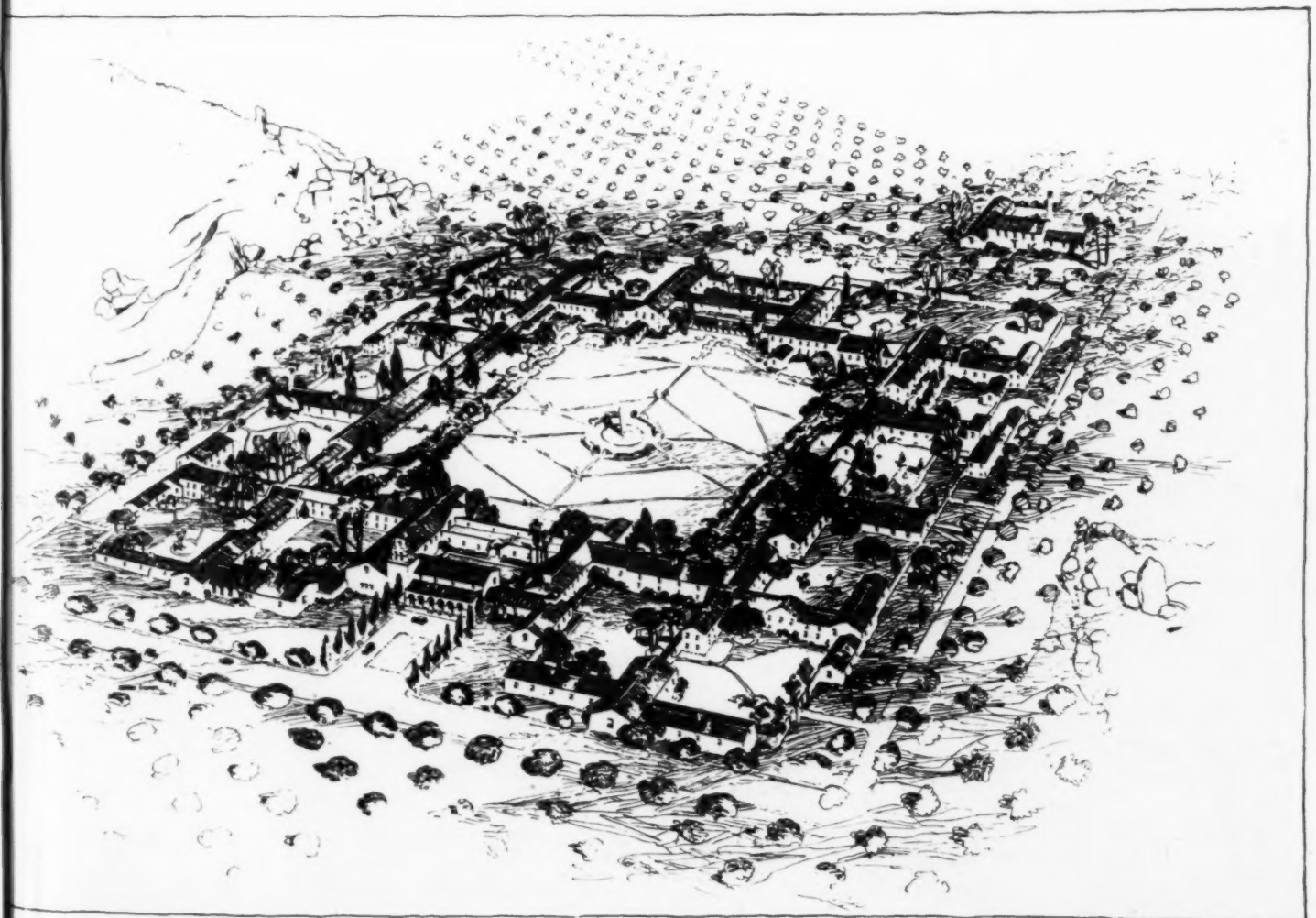




*Photograph by Wiles*

JOSEPH B. KNOWLES MEMORIAL HOME FOR AGED COLORED PERSONS AT NASHVILLE, TENN.  
PWA GRANT: \$57,400 . . . . . DONALD W. SOUTHGATE, ARCHITECT

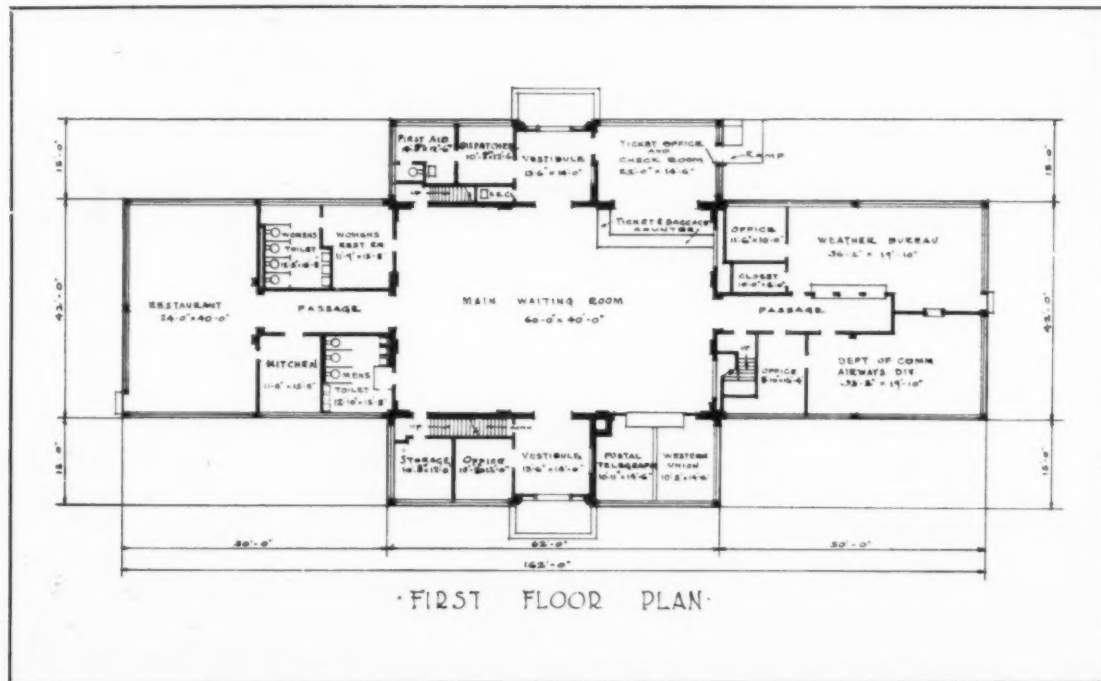
CAMARILLO STATE HOSPITAL — CALIFORNIA STATE DEPARTMENT OF PUBLIC WORKS

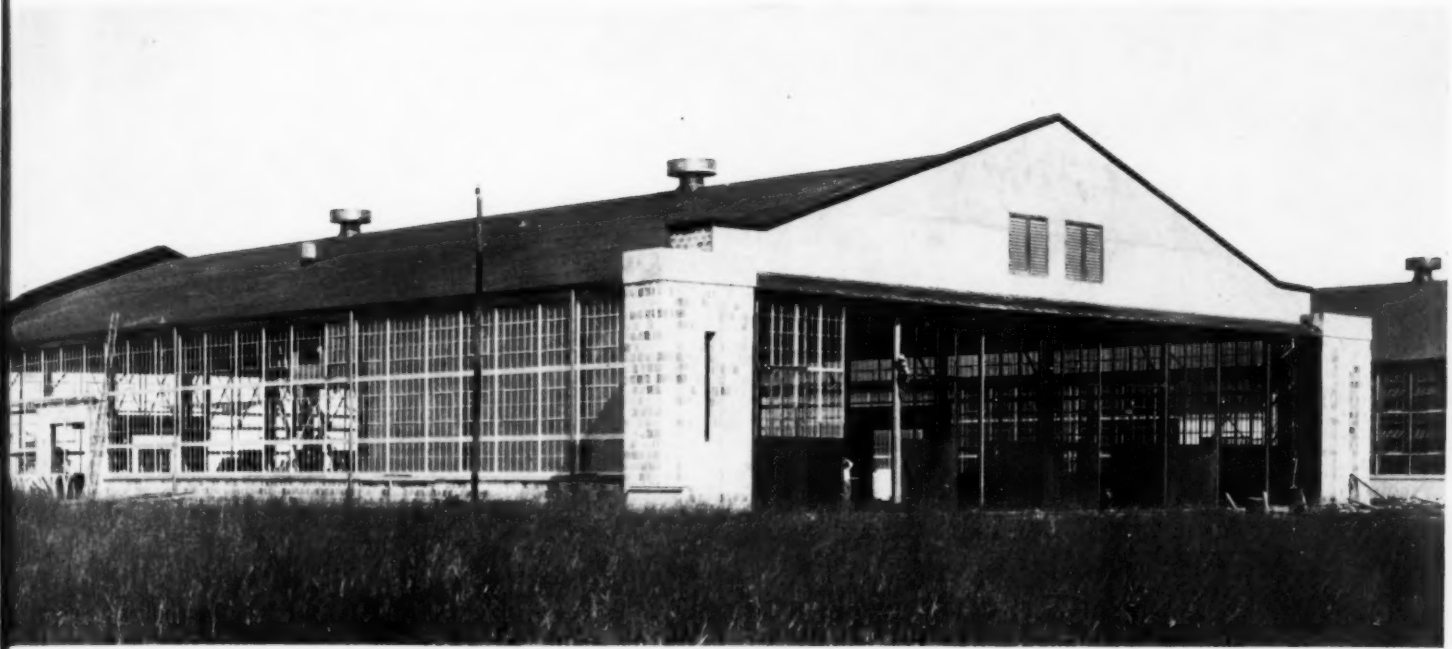


# AIRPORTS and ARMY CONSTRUCTION

CHICAGO MUNICIPAL AIRPORT

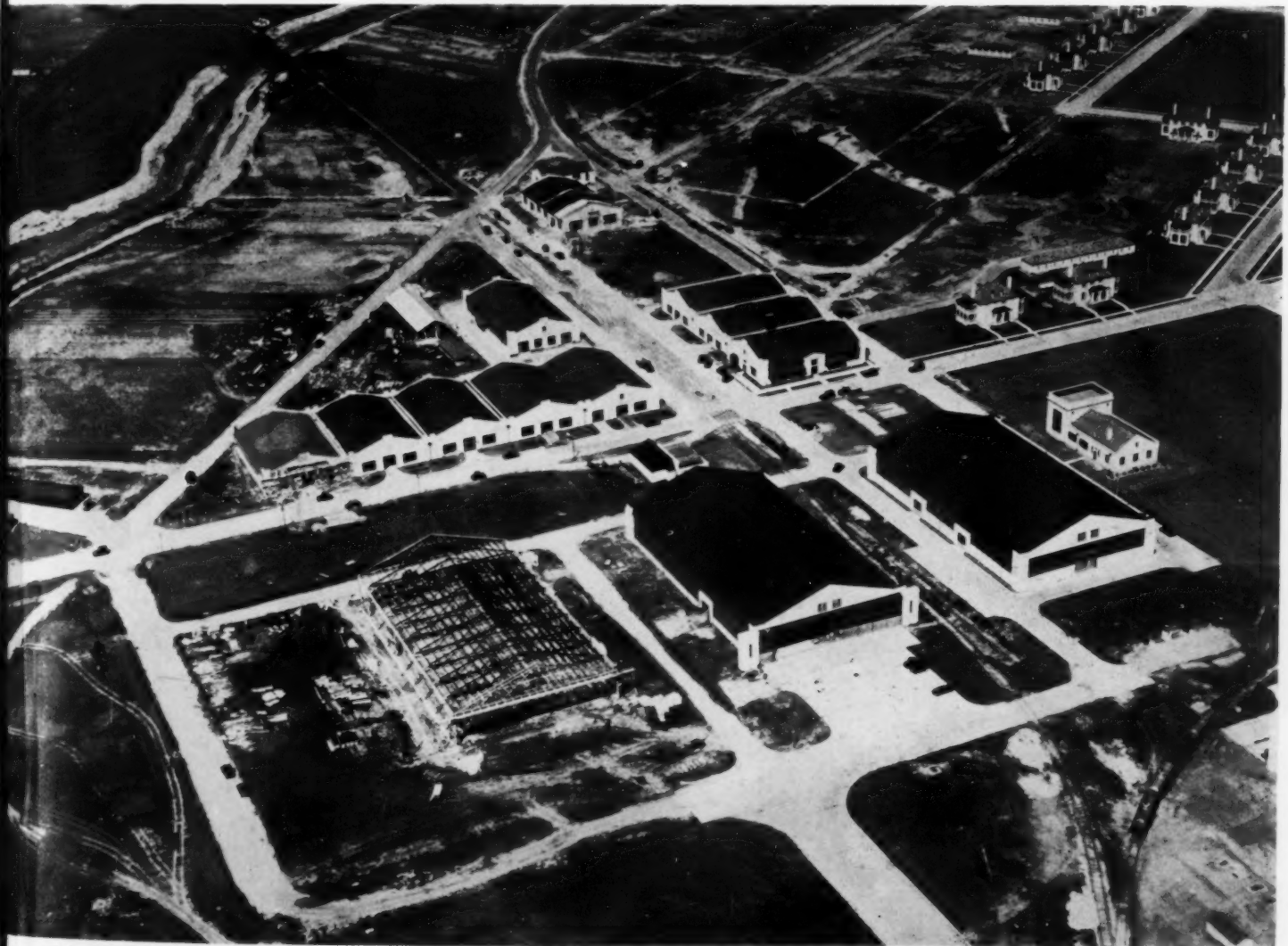
PAUL GERHARDT, JR., CITY ARCHITECT





The greatest peacetime construction program in the history of the United States Army, enabled by a Public Works Administration allotment of \$65,000,000 for non-military purposes, is rapidly nearing completion. Benefits of the program have been spread through 65 stations, posts and camps, located in practically every state. The program has been devoted chiefly to improving the lot of the Army's notoriously ill-housed officers and enlisted men.

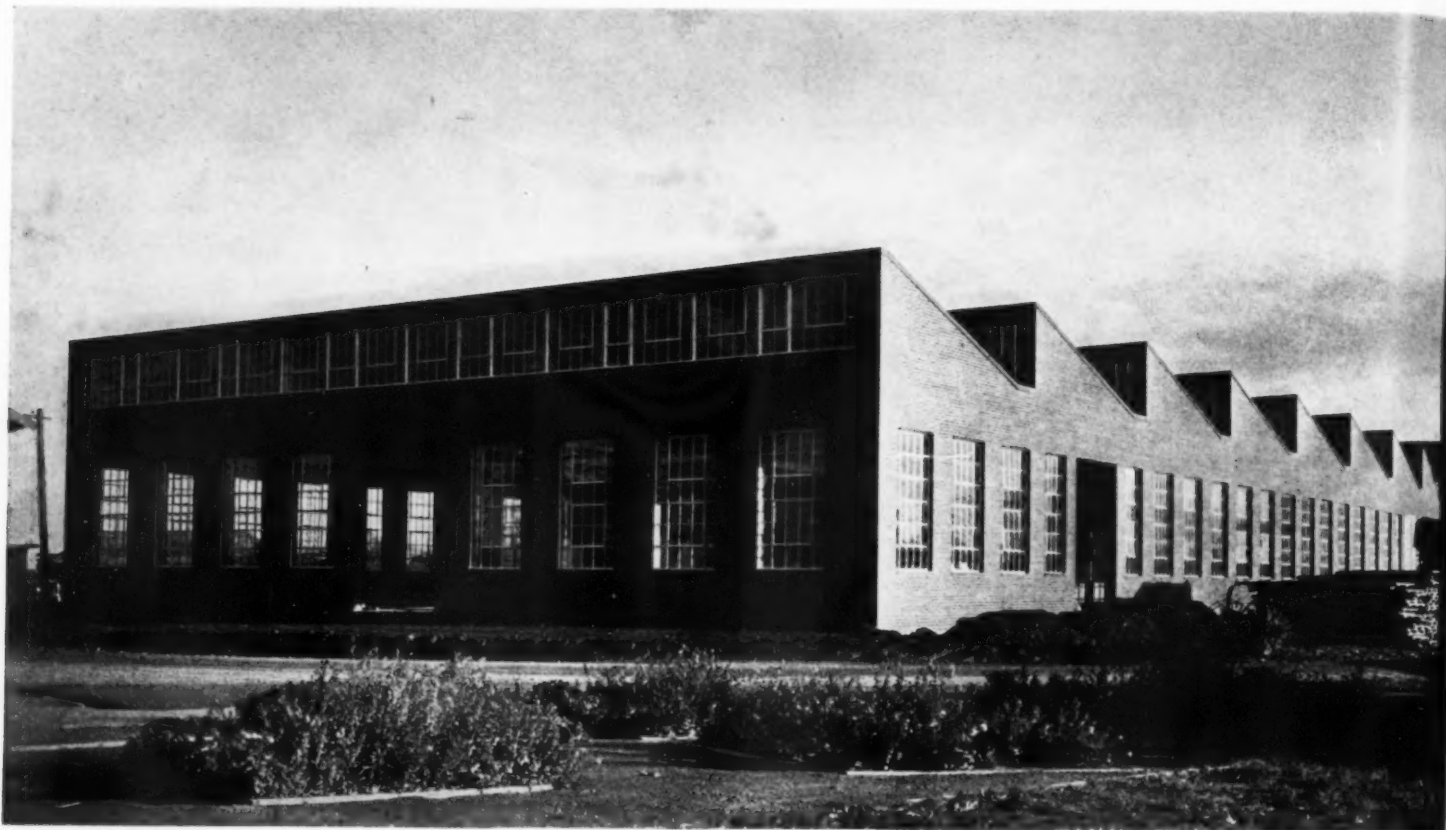
#### BARKSDALE FIELD



*Photographs by U. S. Army Air Corps*

MAY, 1935





*Photograph by Cole & Co.*

SIGNAL CORPS LABORATORY AT FORT MONMOUTH, NEW JERSEY — UNITED STATES ARMY

Of the total PWA apportionment to the Quartermaster General's Office, \$8,300,000 was set aside for improving the plant of the Army air corps. New quarters for officers and enlisted men have been built, landing fields graded and improved, new hangars and service buildings erected.



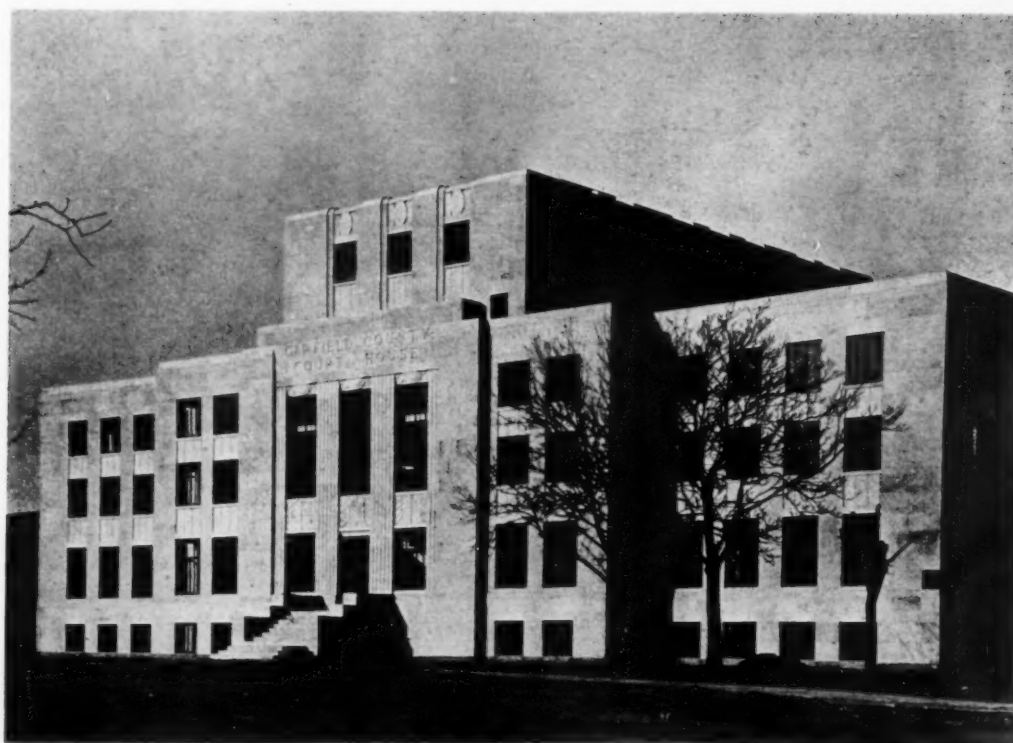
BALLOON HANGAR  
AT POPE FIELD  
NORTH CAROLINA



## COURTHOUSES

(1) CASS COUNTY COURTHOUSE IN IOWA — PWA GRANT: \$36,500  
DOUGHER, RICH AND WOODBURN, ARCHITECTS AND ENGINEERS

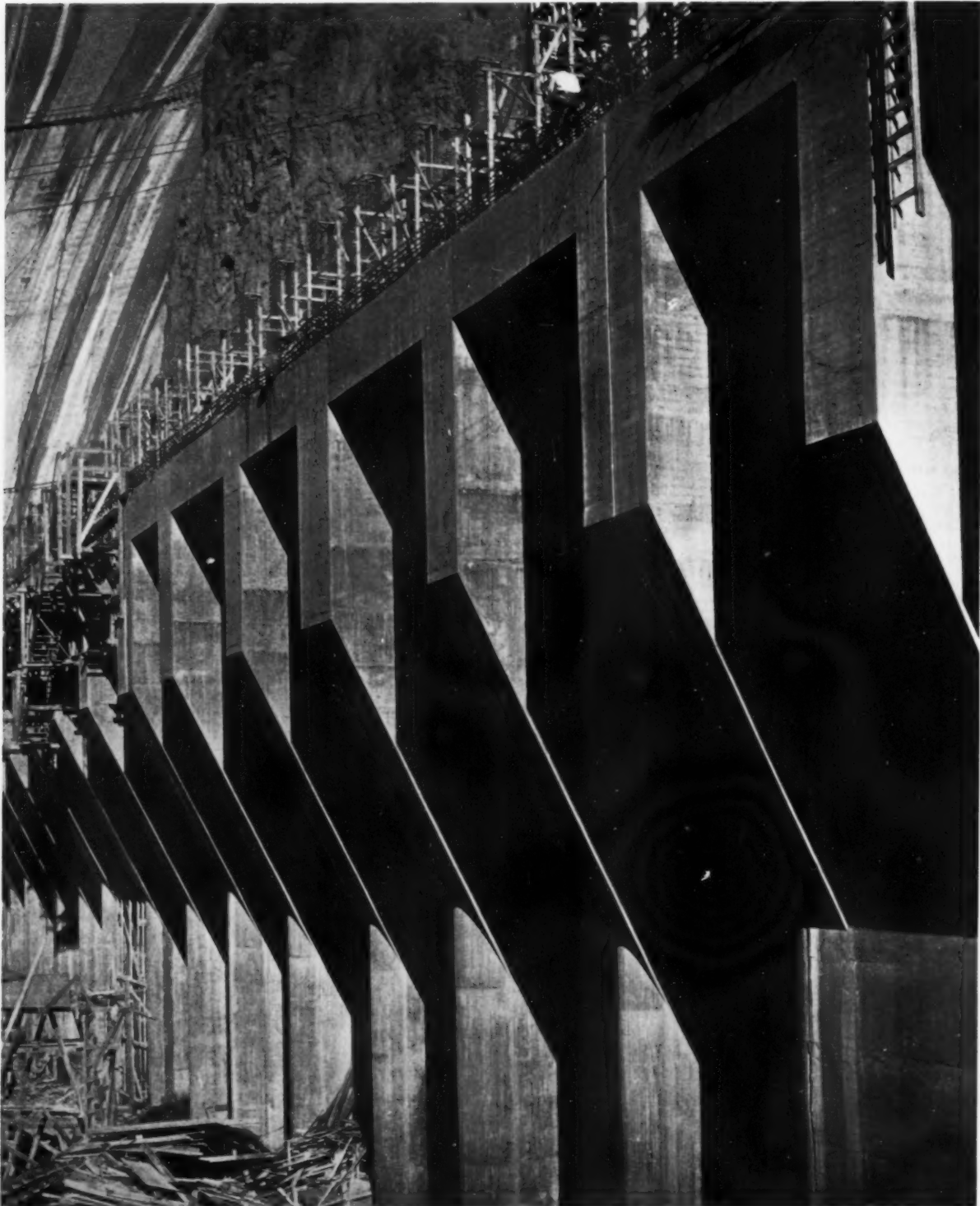
(2) GARFIELD COUNTY COURTHOUSE AND JAIL AT ENID, OKLAHOMA  
PWA GRANT: \$57,000 HAWK AND PARR, ARCHITECTS

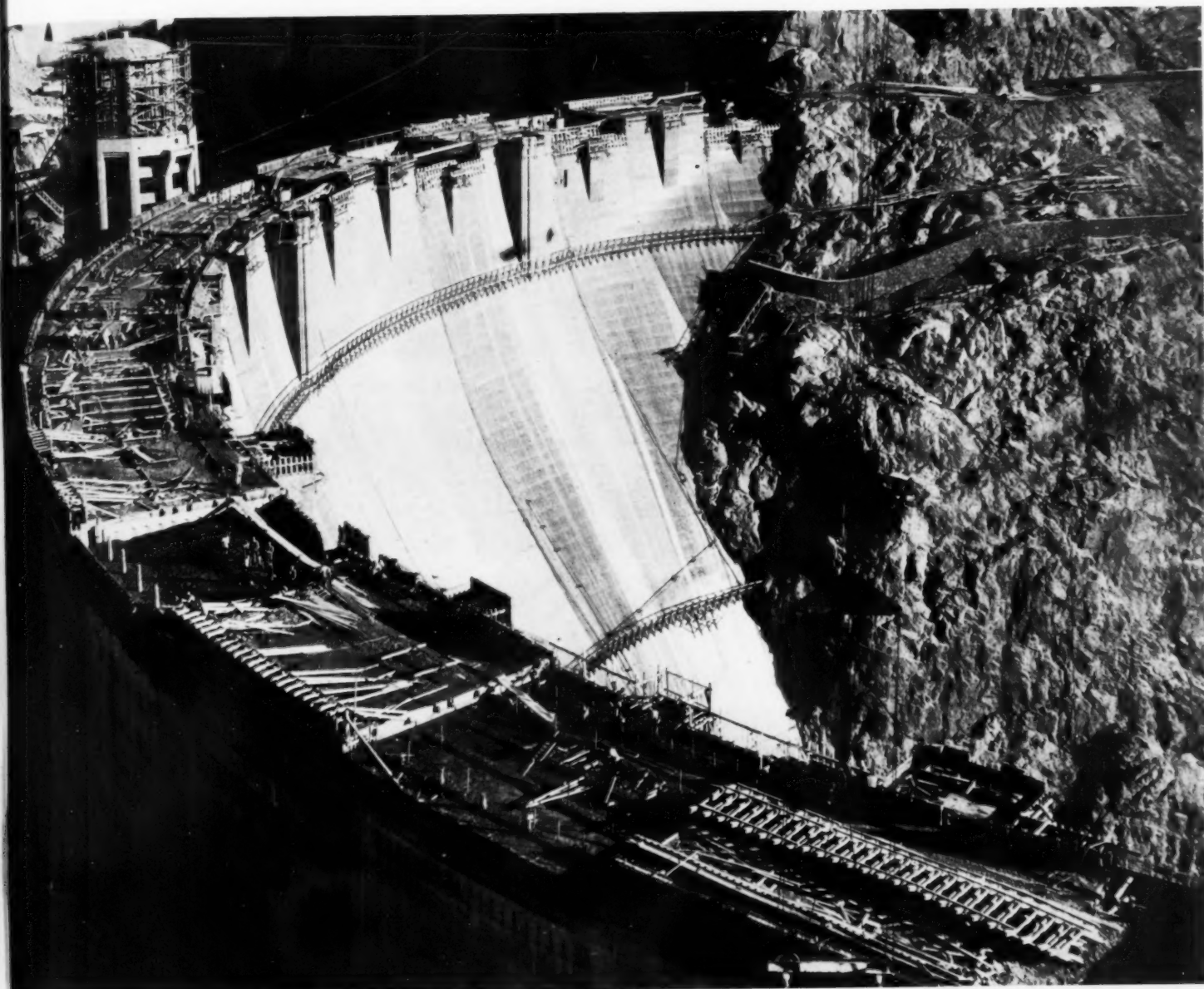


## POWER PLANTS and RIVER IMPROVEMENTS

### DRAFT TUBES OF THE POWER PLANT UNDER CONSTRUCTION AT BOULDER DAM

PWA has made allotments totaling \$192,518,900 which will result in the generation and distribution of cheap electricity by publicly owned power plants and distribution systems. \$146,250,000 of this money is being spent for five giant projects: the Bonneville and Grand Coulee dams and power plants on the Columbia River in the Pacific northwest section of the country, the Fort Peck dam on the Missouri River in Montana, the Boulder dam and power plant, and the Casper-Alcova project in Wyoming.

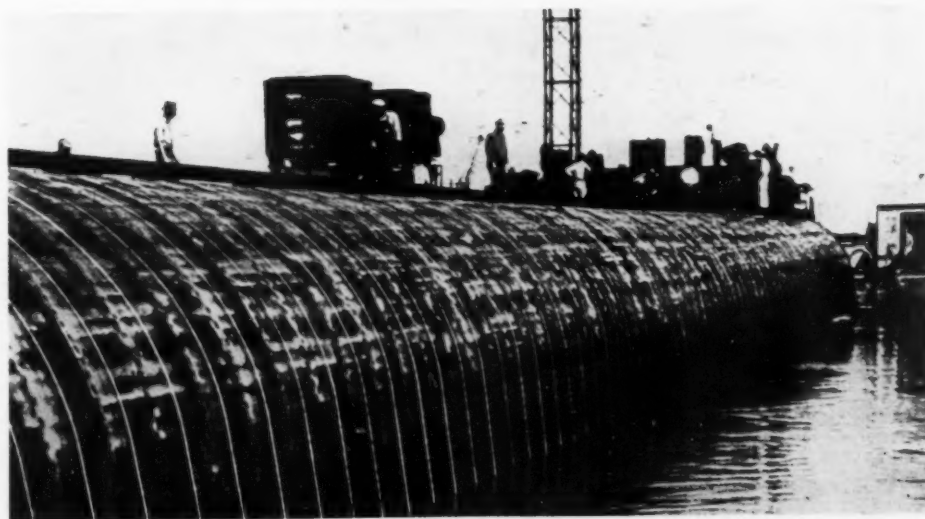




BOULDER DAM, BUILT BY BUREAU OF RECLAMATION, DEPARTMENT OF INTERIOR, WITH PWA FUNDS

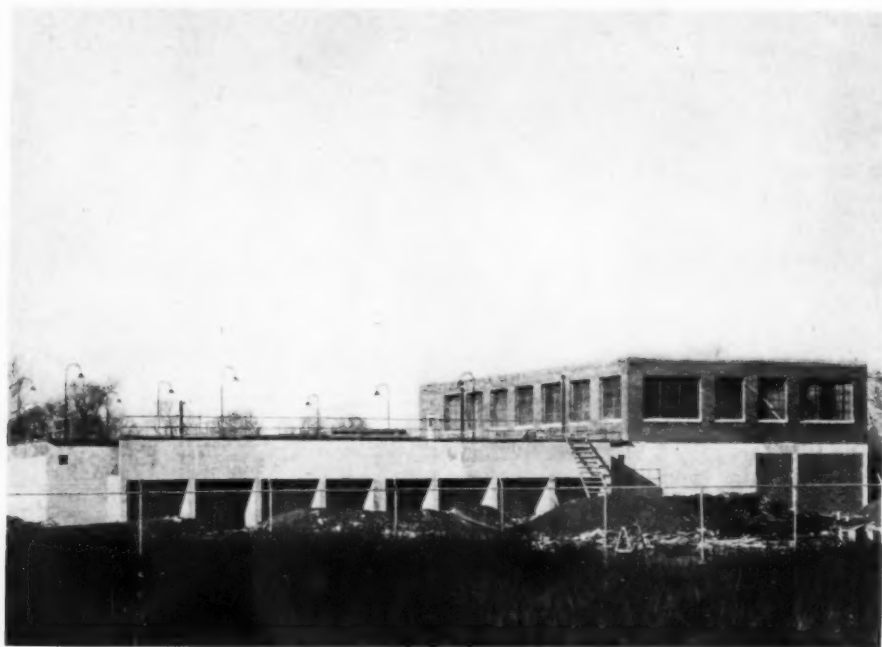
**SINKING AN ASPHALT MATTRESS TO PROTECT BANKS OF THE MISSISSIPPI RIVER NEAR NEW ORLEANS**

Through the allocation of \$98,500,000 in PWA funds, residents of seventy per cent of the lower Mississippi districts have been insured against disastrous floods, while in the upper river a six-foot channel has been guaranteed. A complete system of waterways will connect the Gulf and the Great Lakes and Minnesota's Twin Cities by the Mississippi; Sioux City, Iowa, and the main watercourse by the Missouri; and Pittsburgh and the Mississippi by the Ohio River.



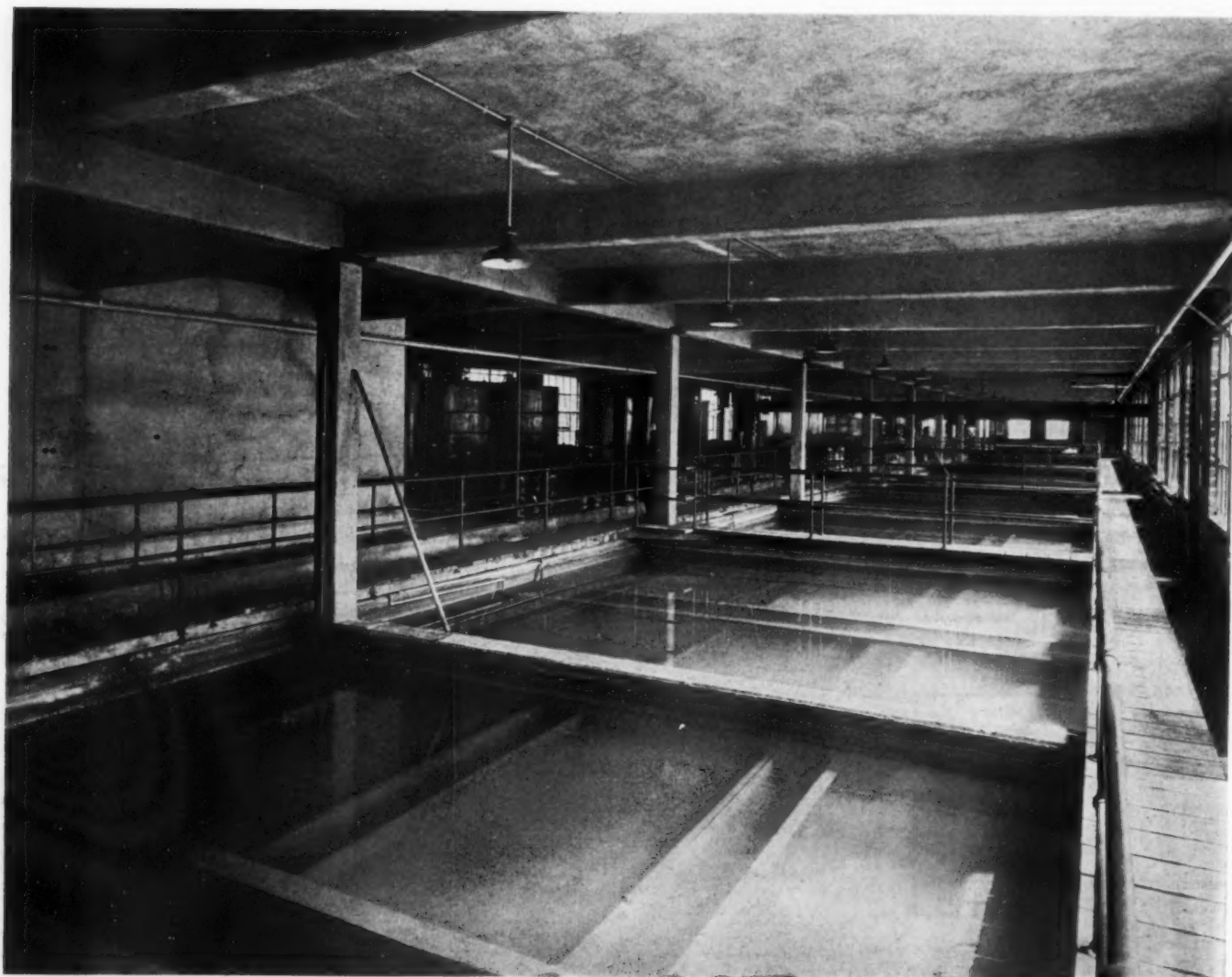


FILTER  
PLANTS



SETTLING BASIN AND FILTER PLANT . . . . . AT ROME, GEORGIA

INTERIOR VIEW OF FILTER PLANT AT ELIZABETHTON, TENNESSEE — LOCKWOOD GREENE ENGINEERS, INC.



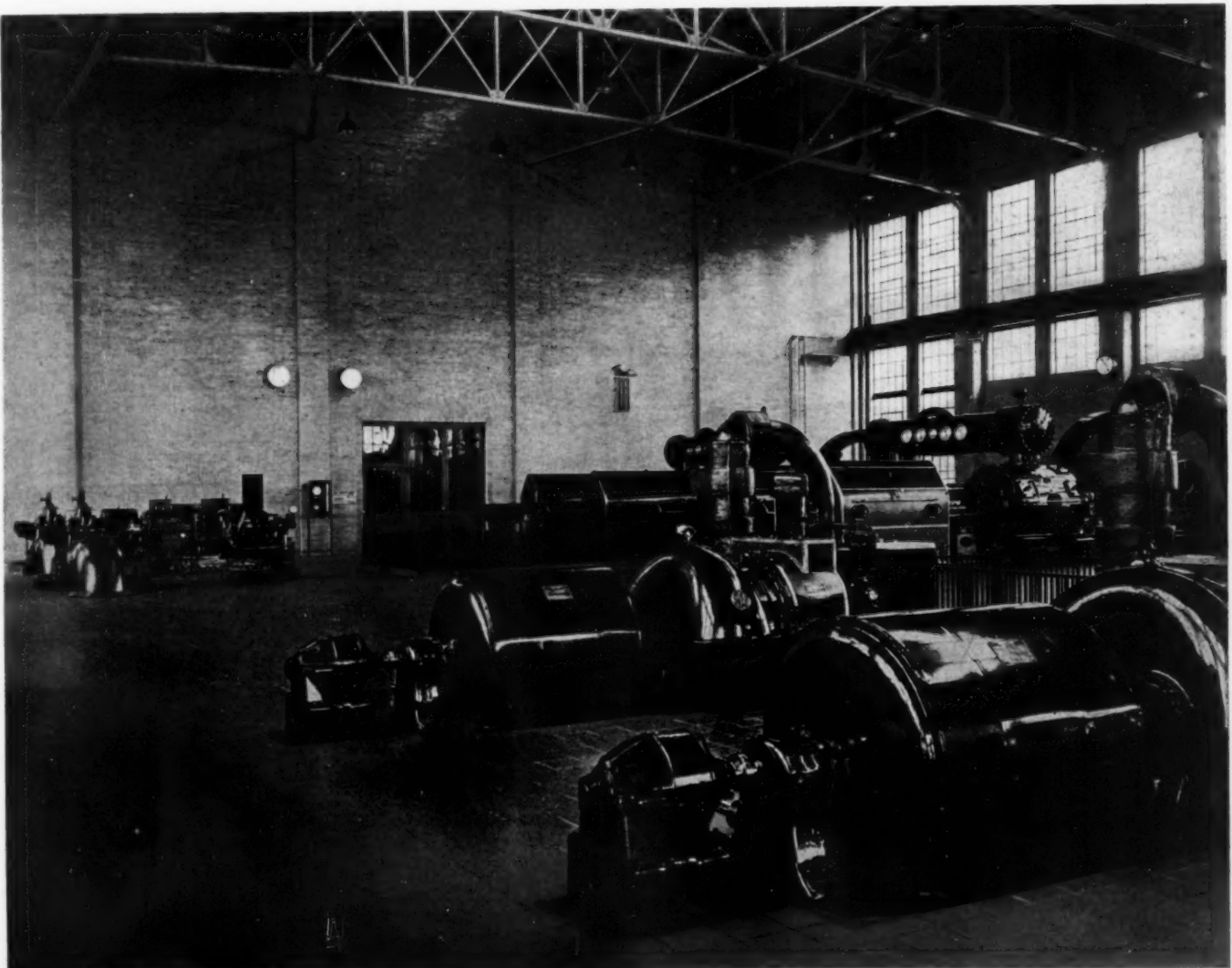


# PUMPING STATION



SHEAHAN PUMPING STATION . . . . . AT MEMPHIS, TENNESSEE

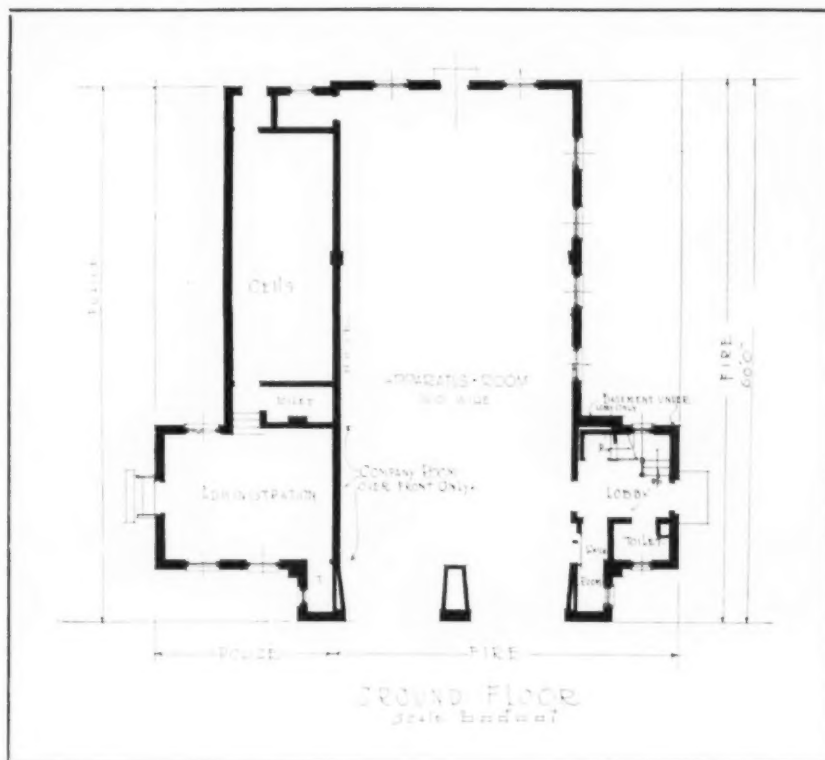
JONES, FURBRINGER AND JONES, ARCHITECTS — FULLER & McCLINTOCK, THOMAS H. ALLEN, ENGINEERS



*Photographs by Polend*

## FIRE STATIONS

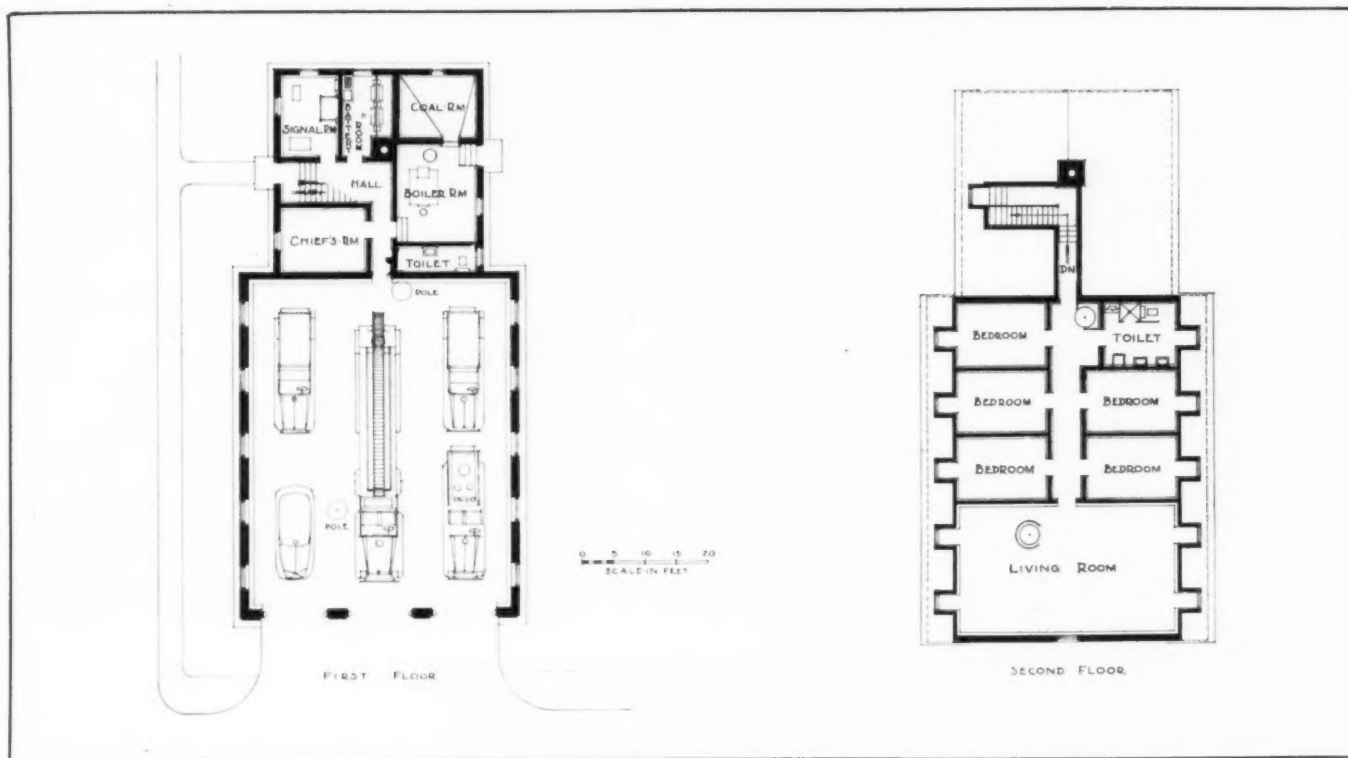
The building cost \$20,000 and was built with CWA funds. It was completed in November, 1934.



FIRE STATION AT AYER, MASSACHUSETTS . . . .

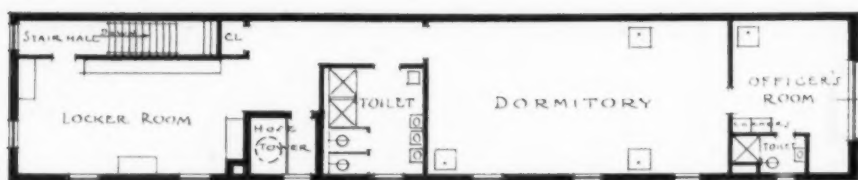
DESIGNED BY GEORGE ERNEST ROBINSON, ARCHITECT



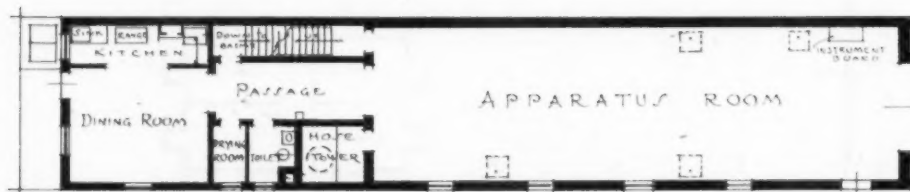


CENTRAL FIRE STATION AT NANTUCKET, MASSACHUSETTS . . . . . LITTLE AND RUSSELL, ARCHITECTS

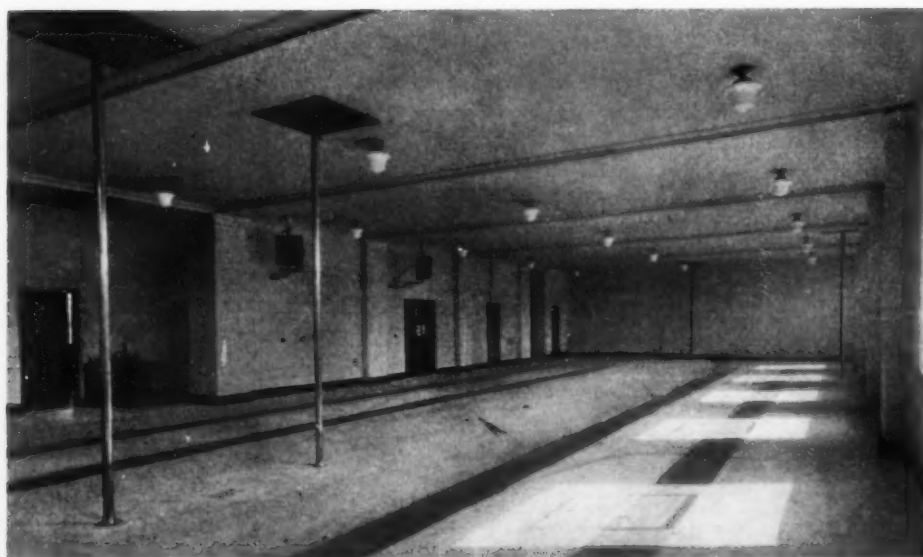




SECOND FLOOR PLAN



FIRST FLOOR PLAN

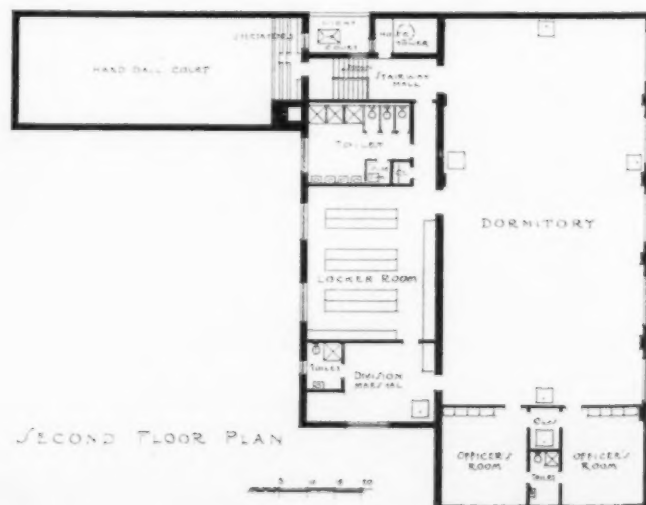


INTERIOR AND PLANS OF FIRE STATION AT 4911 BELMONT AVENUE, CHICAGO

PLANS OF FIRE STATION AT 9311 SOUTH CHICAGO AVENUE, CHICAGO — PAUL GERHARDT, JR., CITY ARCHITECT

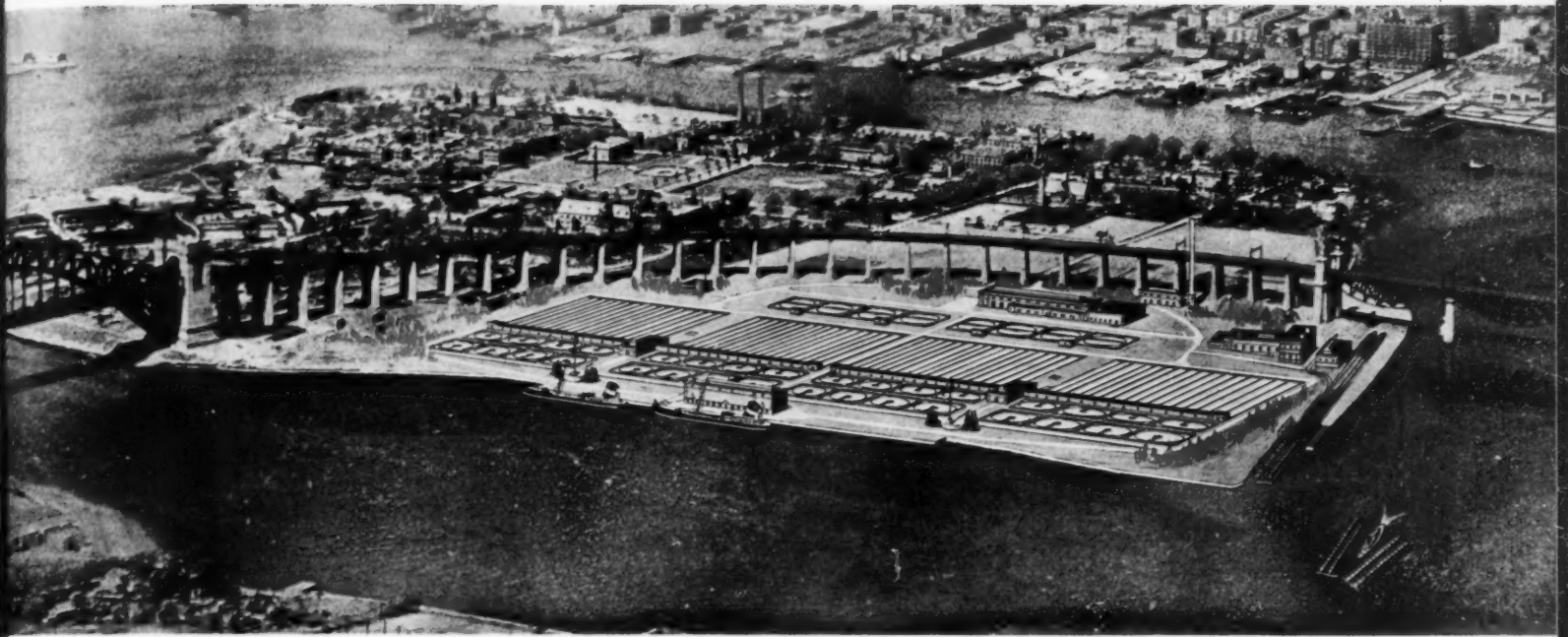


FIRST FLOOR PLAN



SECOND FLOOR PLAN

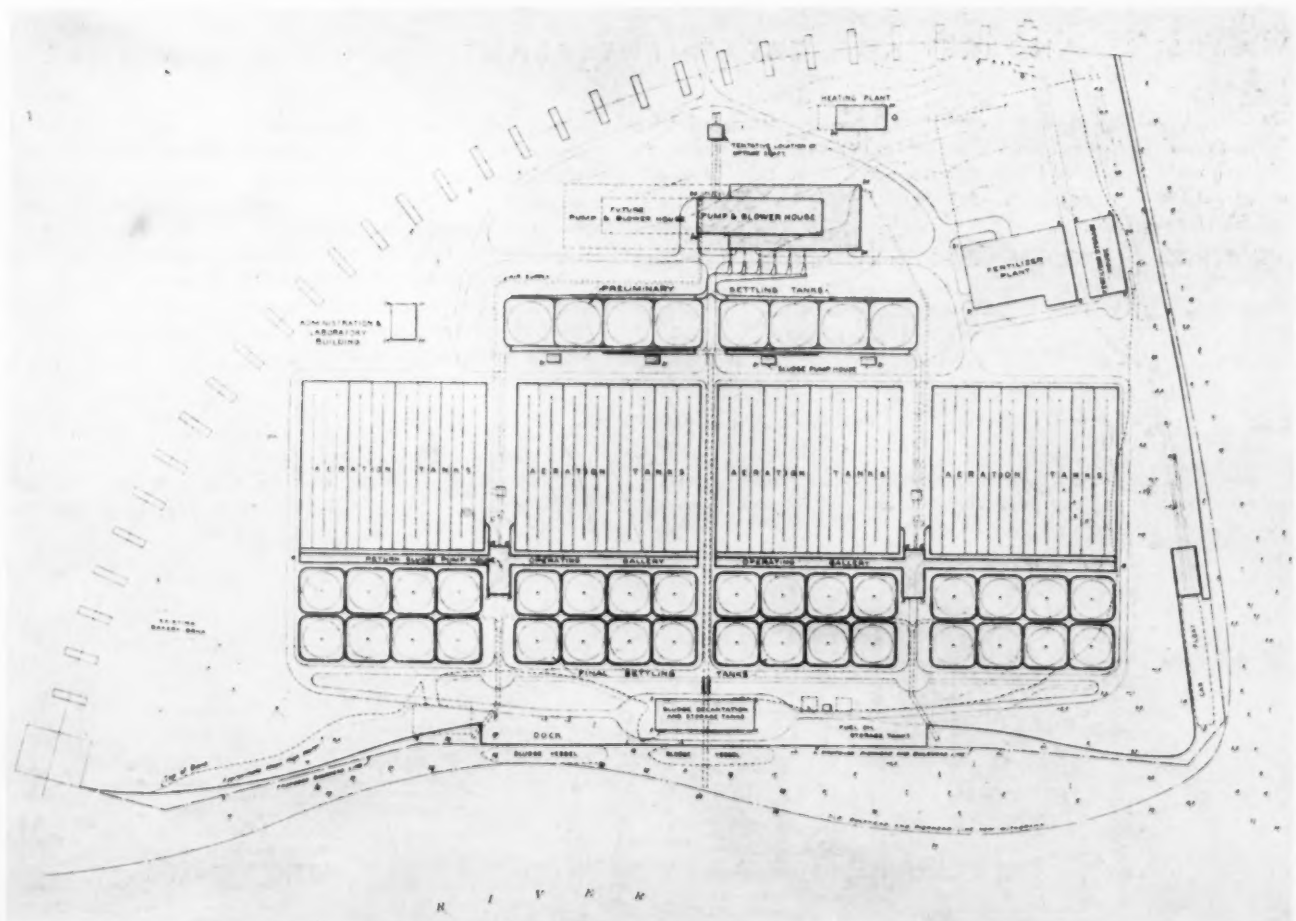


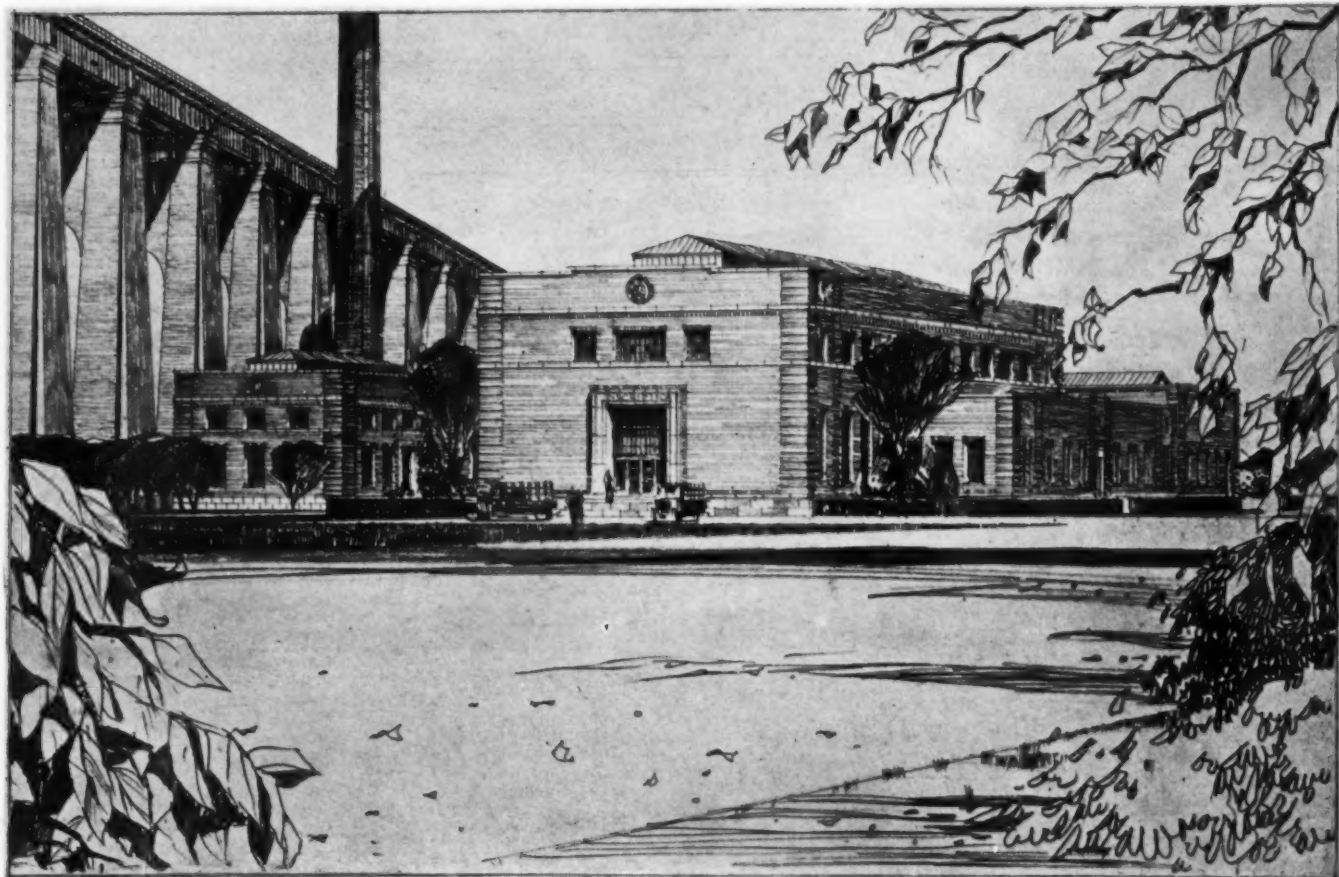


## WARDS ISLAND SEWAGE TREATMENT WORKS, NEW YORK CITY

DETAILED DESIGN BY FULLER & McCLINTOCK IN COLLABORATION WITH CITY'S ENGINEERS  
SLOAN AND ROBERTSON, ARCHITECTS

NOEL CHAMBERLIN, LANDSCAPE ARCHITECT





HEATING PLANT AND PUMP AND BLOWER HOUSE

## WARDS ISLAND SEWAGE TREATMENT PLANT . . . . . NEW YORK CITY

On July 7, 1931, ground was broken for the construction of the Wards Island plant, which will be the largest activated sludge sewage disposal works in the world. It will treat a flow of 180 m.g.d. of sewage and serve a population of 1,350,000, nearly one-fifth that of greater New York.

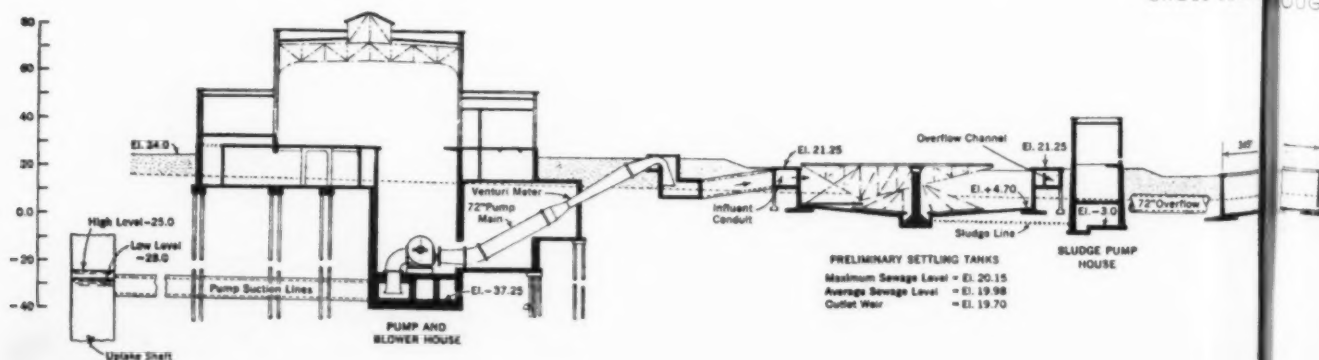
This \$30,000,000 plant, with its collecting works, is the first part of a program calling for the ultimate purification of all the sewage entering New York Harbor. The volume of domestic and industrial waste and of spent water now entering the harbor approaches a billion and a half gallons daily.

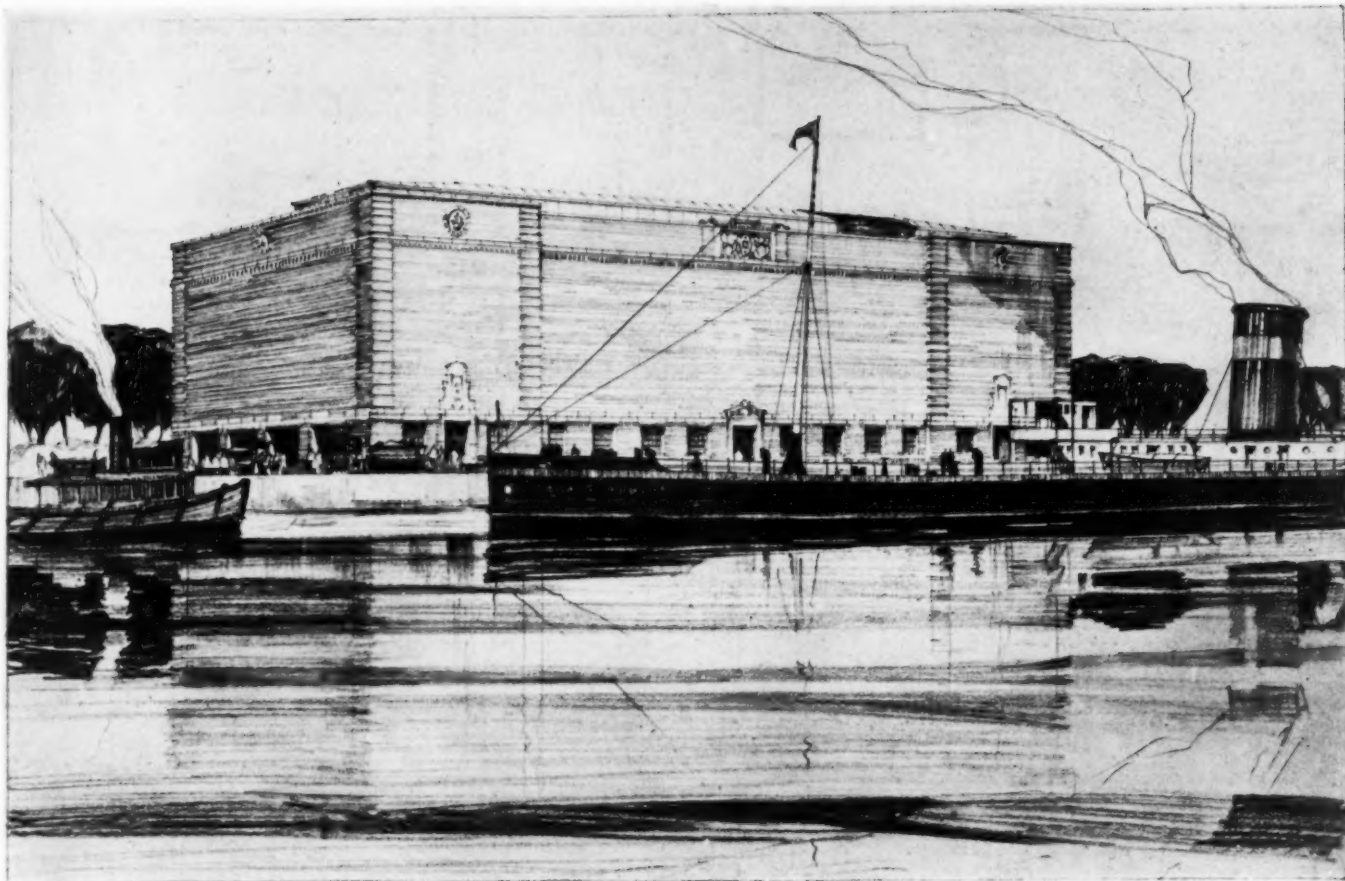
The activated sludge process and plant, as described by George W. Fuller in a paper presented before the American Society of Civil Engineers:

"Sludge is activated by aerating sewage for a sufficient time to permit the solid particles to become coated and impregnated with

growths of oxidizing bacteria and other organisms. Such activated sludge, with gelatinous surfaces and oxidizing properties of a biochemical nature, is mixed with the sewage to be treated for three or more hours in an aerating tank well supplied with atmospheric oxygen. Here the suspended and colloidal matter in the sewage becomes attached to the activated sludge particles, and the dissolved organic matter is oxidized by the bacteria and their enzymes. The sludge is then separated by sedimentation, leaving a clear and well purified effluent. A portion of the sludge is returned to the inlet of the aeration tank and the excess is dried for use as a fertilizer, or otherwise disposed of . . .

"In the general layout of the Wards Island project, the principal structures are the pump and blower house, containing the main sewage pumps, the blowers, and the electric control; the preliminary settling tanks, where the heavier suspended matter will be settled





SLUDGE DECANTATION AND STORAGE BUILDING

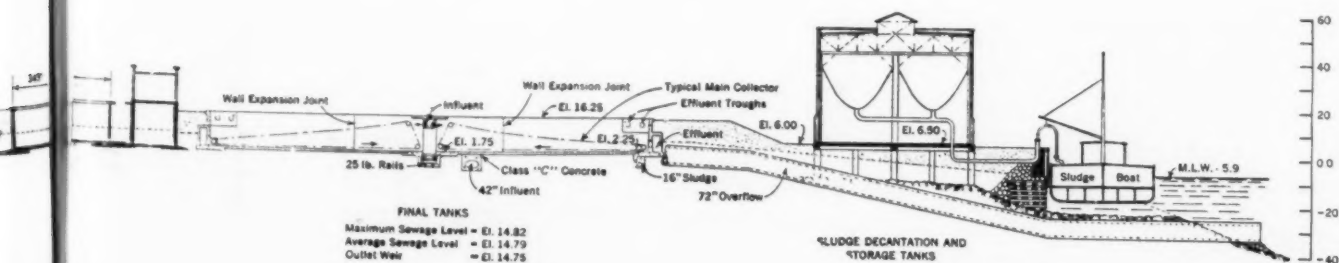
FULLER & McCLINTOCK, ENGINEERS • SLOAN AND ROBERTSON, ARCHITECTS

out; the preliminary sludge pumping stations, housing grease and scum ejectors, and pumps for removing the settled sludge from the preliminary tanks; the aeration tanks, where air is admitted to the mixture of sewage and return sludge for agitation and aeration; the final settling tanks, where the remaining solids are separated from the liquid; the return sludge pumping stations, housing the pumps which return the sludge from the final tanks back into the system for recirculation, and which move the excess sludge to the sludge storage tanks or to the proposed fertilizer plant; the operating galleries, which house the gates and meters for controlling the flow to and from the aeration tanks and for regulating the withdrawal of sludge from the final tanks; and the sludge storage and decantation building, housing the tanks in which the excess sludge is stored previous to loading on the sludge boats and for decantation. In addition there are a dock; a central heating plant, with oil-fired boilers; an administration building, housing the administrative offices and the laboratory

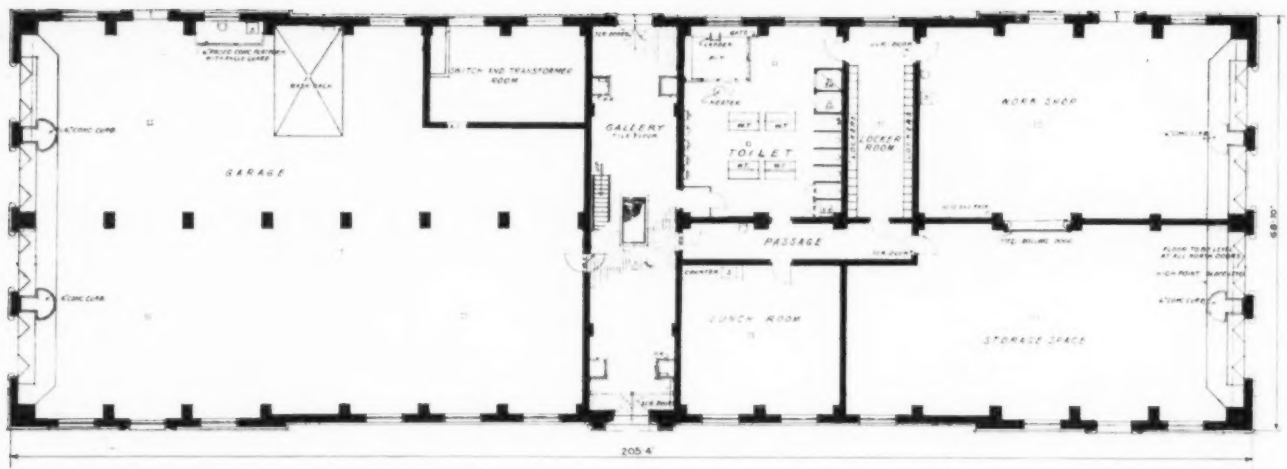
for plant control; and a fertilizer plant, for demonstration purposes.

"Sewage reaching the island from Manhattan and the Bronx will flow from the tunnel uptake shaft to the pump and blower house, where it will be raised some 46 ft. and discharged through conduits into the preliminary settling tanks. The settled sewage will then flow to the aeration tanks through conduits equipped with Venturi meters. Just before it reaches the aeration tanks the return activated sludge will be added. From these tanks the activated sewage will flow across the operating galleries to the final tanks. Here the clear liquid will be drawn off the top and discharged through conduits into the East River, while the sludge at the bottom will flow to the return sludge pumping stations. From there, a large portion, equivalent to some 25 per cent of the raw sewage, will be returned to the inlet conduits of the aeration tanks, and the rest will go to the sludge storage tanks at the dock, for loading into the sludge boats after some decantation."

SECTION THROUGH PLANT







GROUND FLOOR PLAN OF SLUDGE STORAGE BUILDING

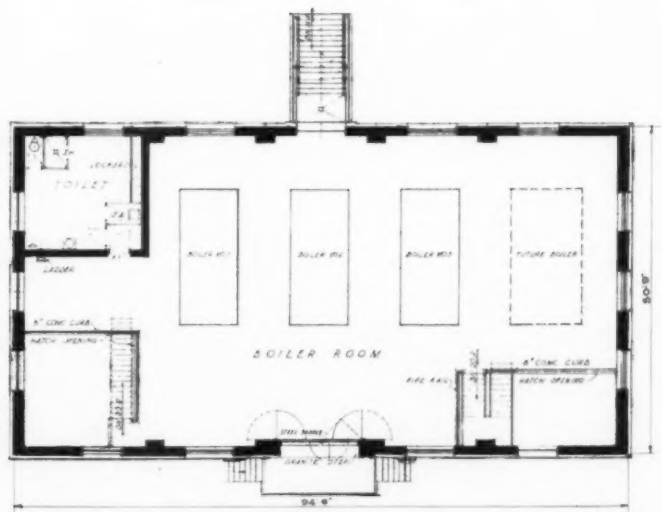


GROUND FLOOR PLAN OF PUMP AND BLOWER HOUSE

WARDS ISLAND SEWAGE  
TREATMENT PLANT, NEW YORK

FULLER & McCLINTOCK  
ENGINEERS

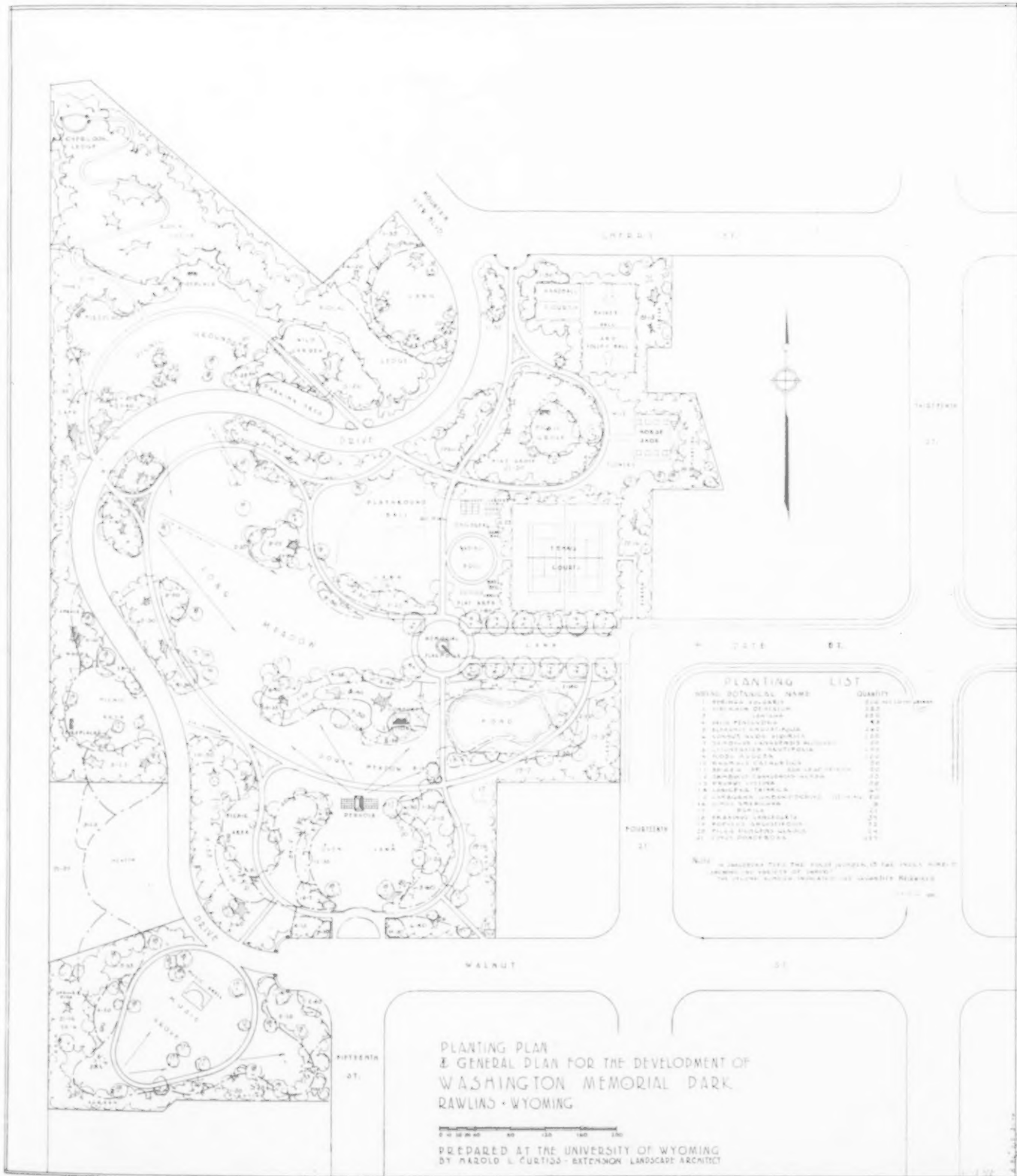
SLOAN AND ROBERTSON  
ARCHITECTS

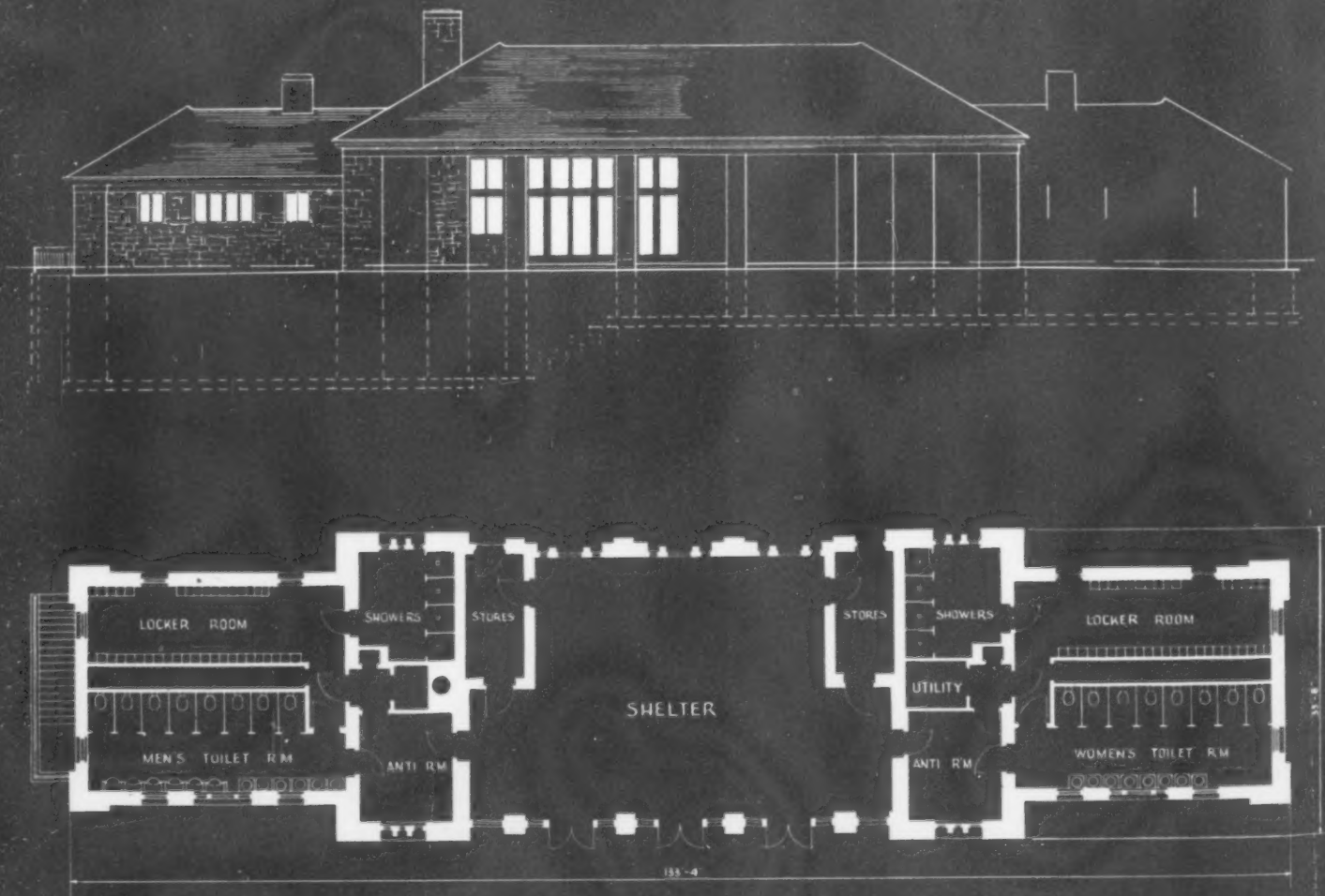


HEATING PLANT



A large percentage of funds expended in Wyoming by the Federal Emergency Relief Administration have been used in the development of George Washington Memorial Parks now nearing completion. Varying in size from 3 to 27 acres, these parks contain adequate provision for a wide range of active and passive types of recreation. Harold L. Curtiss, landscape architect, University of Wyoming, was selected to supervise these projects which were carried forward in cooperation with local park advisory committees on sites acquired by purchase, by gift and by transfer of tax delinquent tracts from other governmental agencies. The accompanying landscape plan shows the general design of one of these recreation areas.

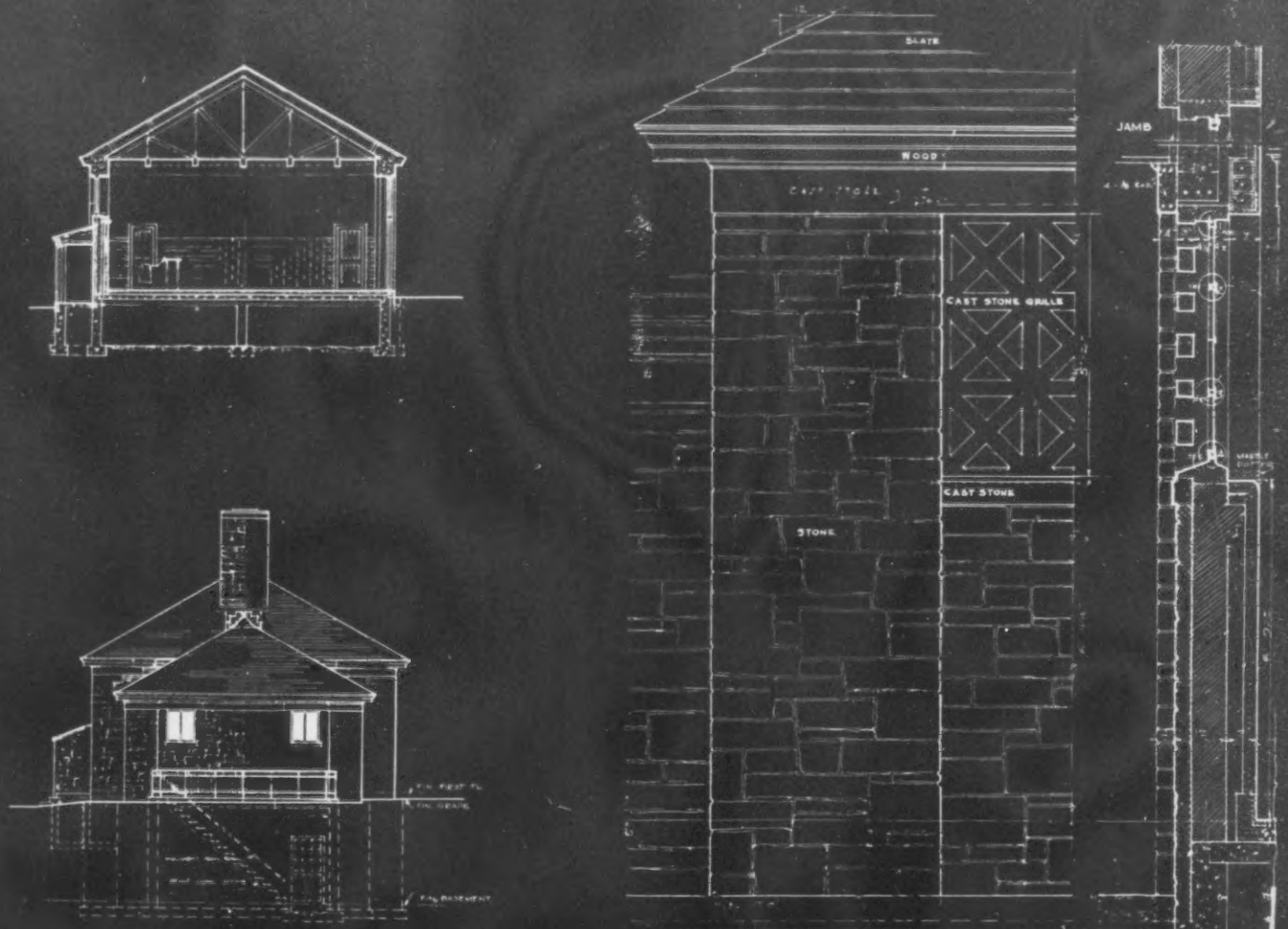




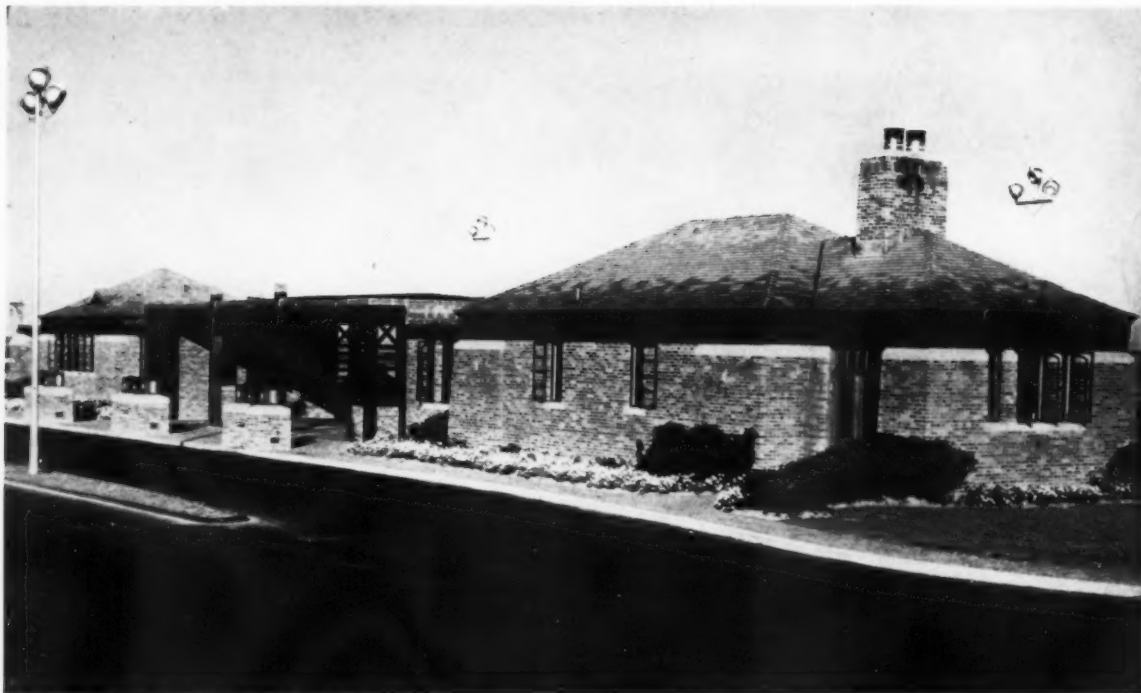
FIELD HOUSE ON GRAND CENTRAL PARKWAY, LONG ISLAND

ALLEY POND PARK  
BOROUGH OF QUEENS

STATE OF NEW YORK DEPARTMENT OF PUBLIC WORKS  
WILLIAM E. HAUGAARD, COMMISSIONER OF ARCHITECTURE





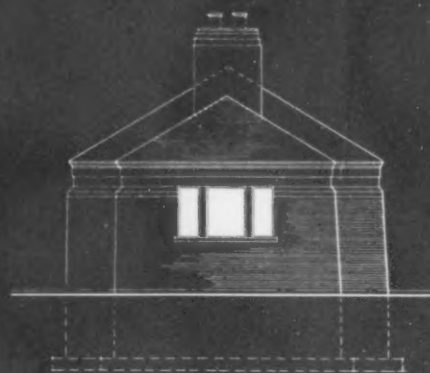
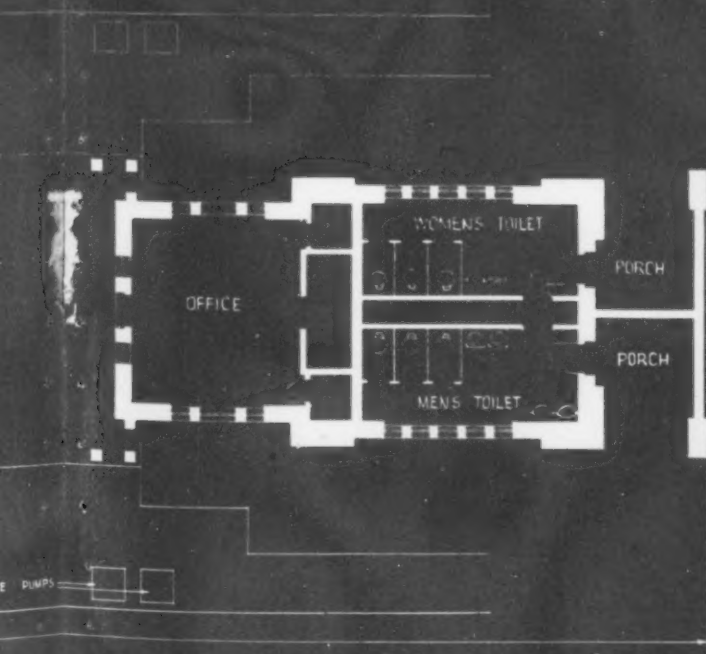
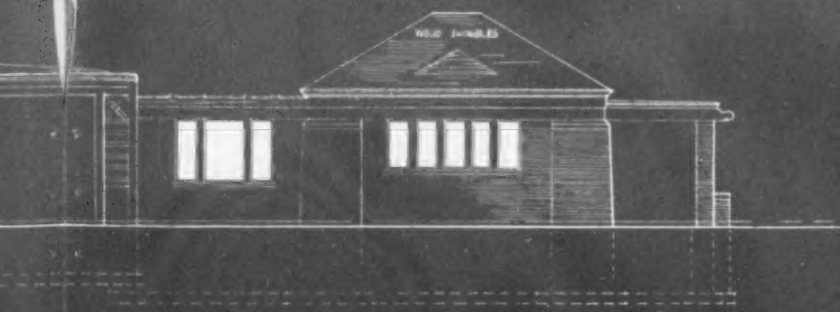


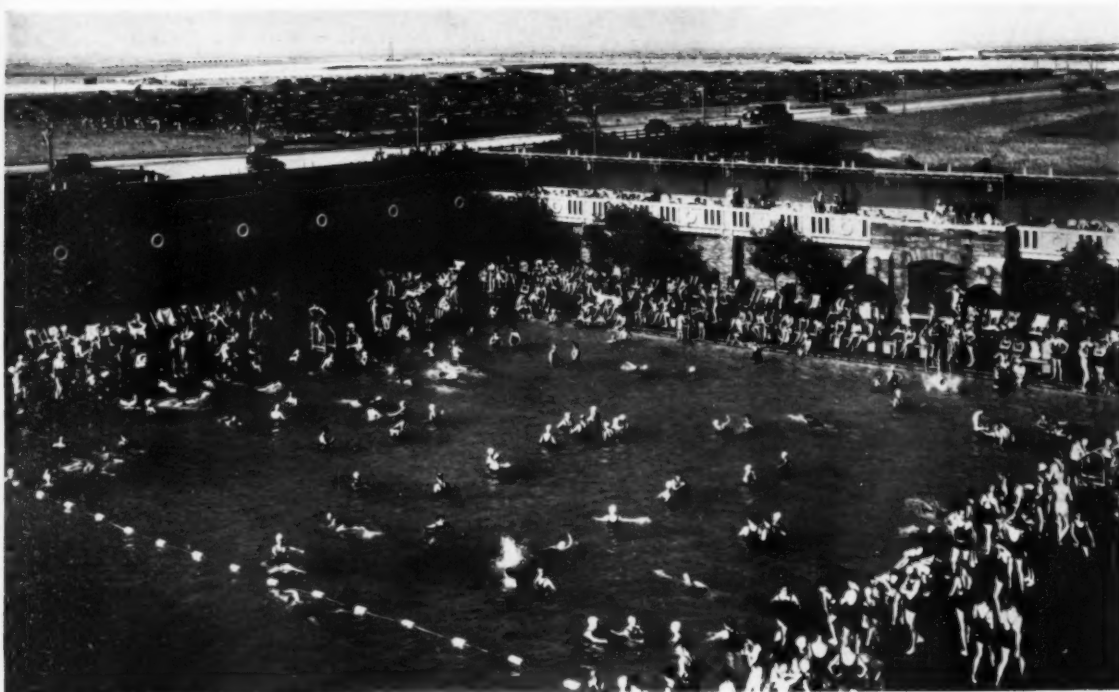
Photograph by Long Island State Park Commission



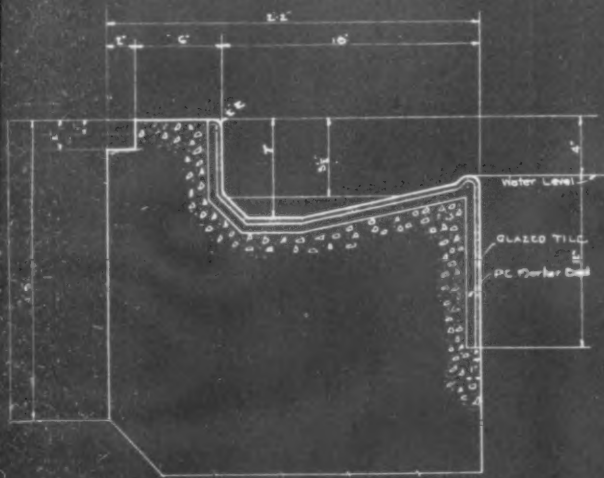


GAS STATION AT JONES BEACH STATE PARK  
LONG ISLAND STATE PARK COMMISSION — NEW YORK

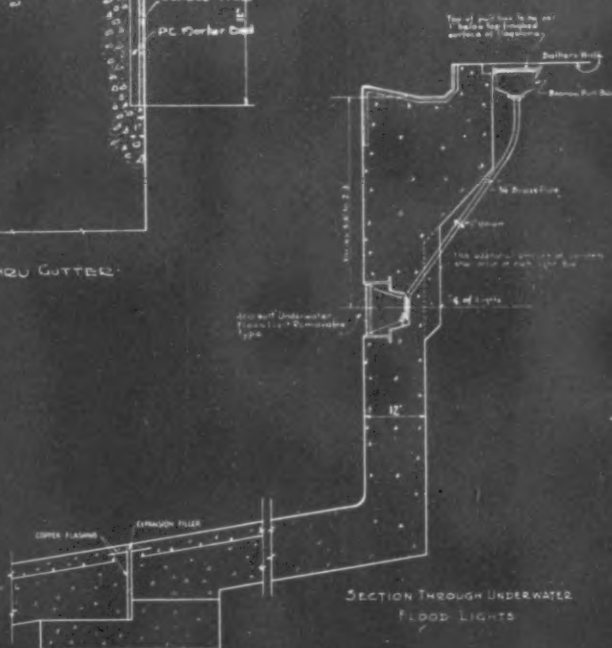




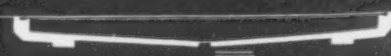
Photograph by Long Island State Park Commission



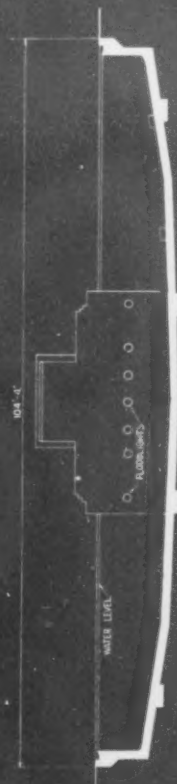
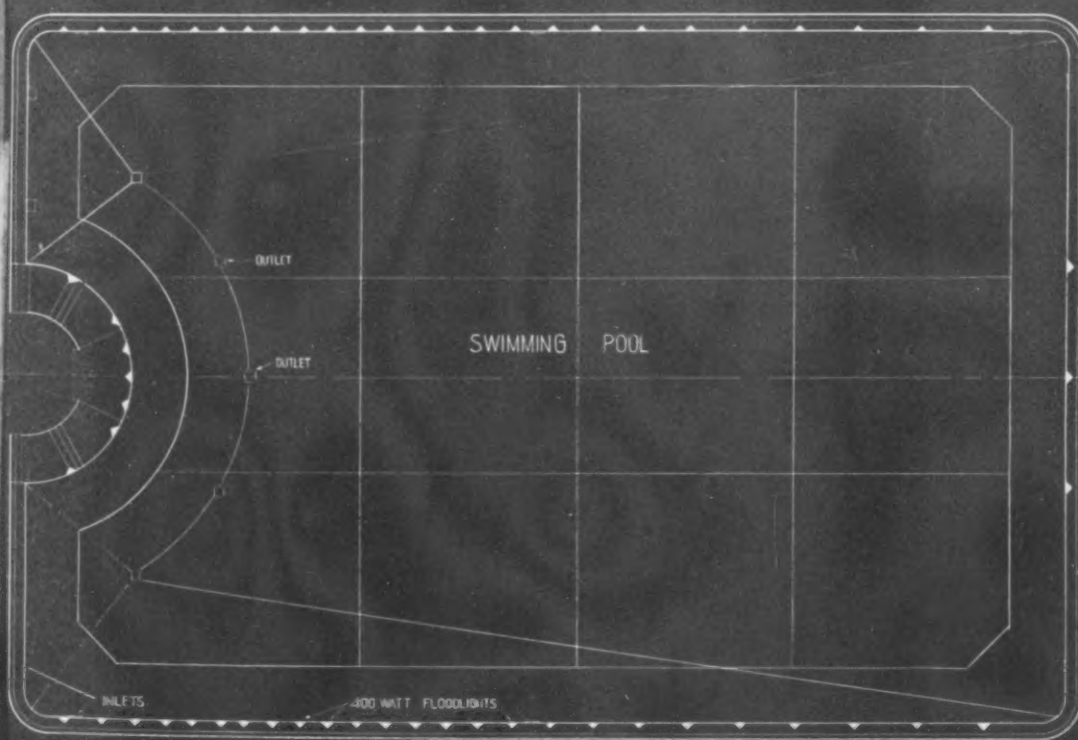
SECTION THRU GUTTER



SECTION THROUGH UNDERWATER FLOOD LIGHTS



WEST BATHHOUSE POOL AT JONES BEACH  
LONG ISLAND STATE PARK COMMISSION — NEW YORK





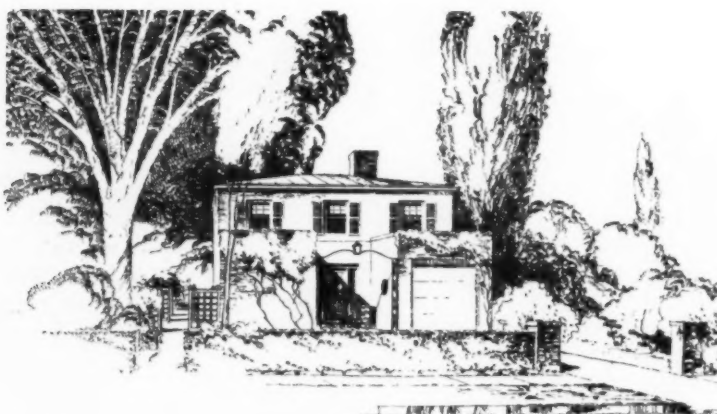
# ILLUSTRATED NEWS

The proposed amendment to Title I of the National Housing Act increasing the maximum government insured loan from \$2,000 to \$50,000 for purposes of modernization and repair has been passed by both House and Senate and is now in conference. Its early enactment is anticipated.

This revision of Title I of the Act has far-reaching possibilities for store merchants, owners of hotels, apartment houses, theaters, industrial plants, club-houses, hospitals, gas stations and other buildings normally part of "Main Street."

To reach this market the Federal Housing Administration will utilize, in addition to its regular field activity, a visomatic presentation, "Modernize Main Street," and will also utilize the facilities of motion pictures.

B. A. McDONALD,  
Director of Promotion  
Federal Housing Administration.



(ABOVE) HOUSE DESIGNED BY JOSEPH J. DEUCHER, ARCHITECT

(BELOW) HOUSE DESIGNED BY OTT AND DOLEYS, ARCHITECTS

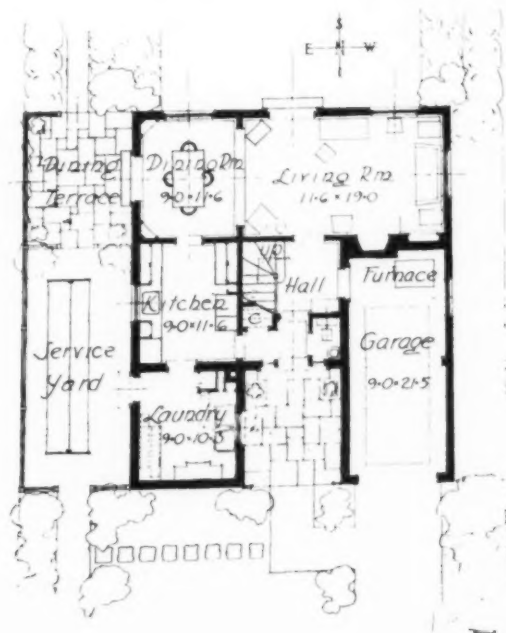


WINNING DESIGNS IN SMALL HOUSE COMPETITION SPONSORED BY BUILDERS EXCHANGE OF CLEVELAND  
HOUSES CONSTRUCTED AS EXHIBITS IN GREATER CLEVELAND SMALL HOME SHOW, MAY 4-18

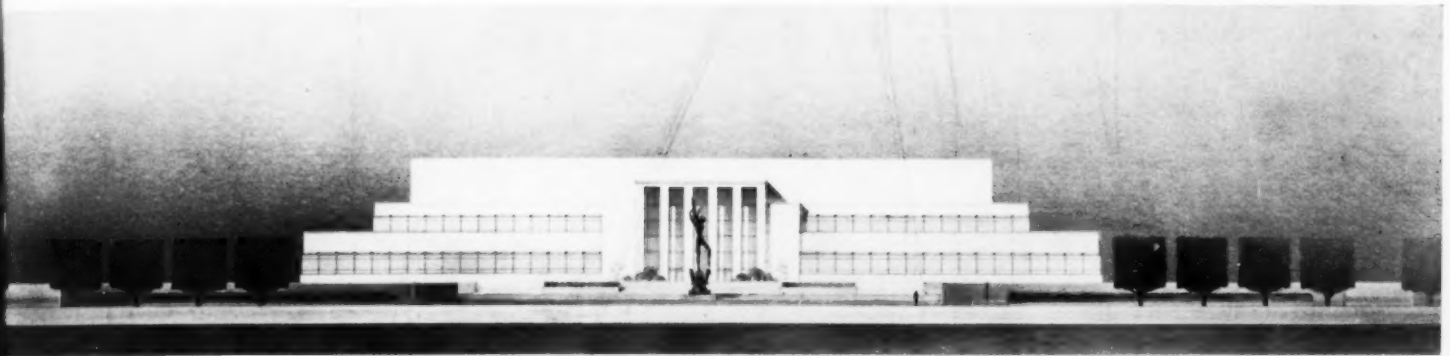
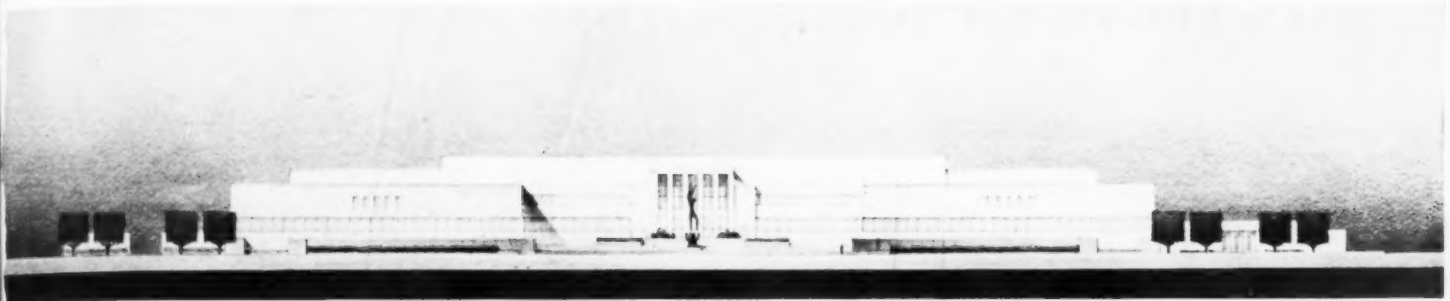


Photograph courtesy of Gar Wood Industries

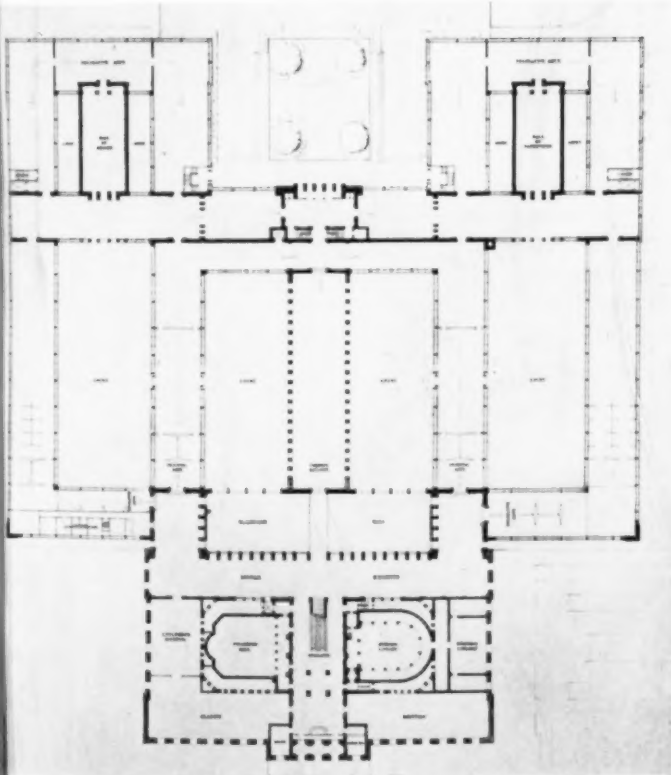
**A HOUSEBOAT ON LAND:** In order to make room for more automobiles, the forward cabins of the Great Lakes Engineering Works' steamer "Britannia" were removed. C. E. Baisley, the shipping company's manager, has made a house from the two-story deck quarters, now located on the banks of the Detroit River at Ecorse.





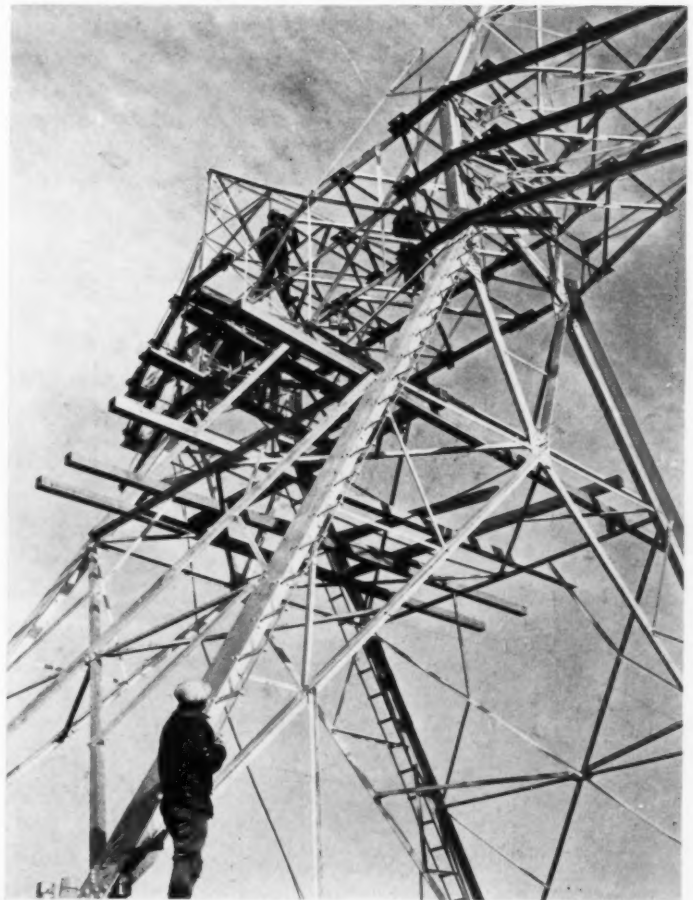


Photographs courtesy of the Art Institute of Chicago



WINNING DESIGN FOR PROPOSED ADDITION TO THE ART INSTITUTE OF CHICAGO — HOLABIRD AND ROOT, ARCHITECTS. The lower illustration shows that part of the complete plan which will be constructed first. The addition will cost \$10 million, and the construction will extend over a period of eight to ten years.

ONE OF THE STEEL RIVER CROSSING TOWERS for the transmission line which supplies power for the dredges and tunneling operations for the Fort Peck dam, which is being built by the Engineer Corps in eastern Montana with an allotment of \$50,000,000 from the Public Works Administration.

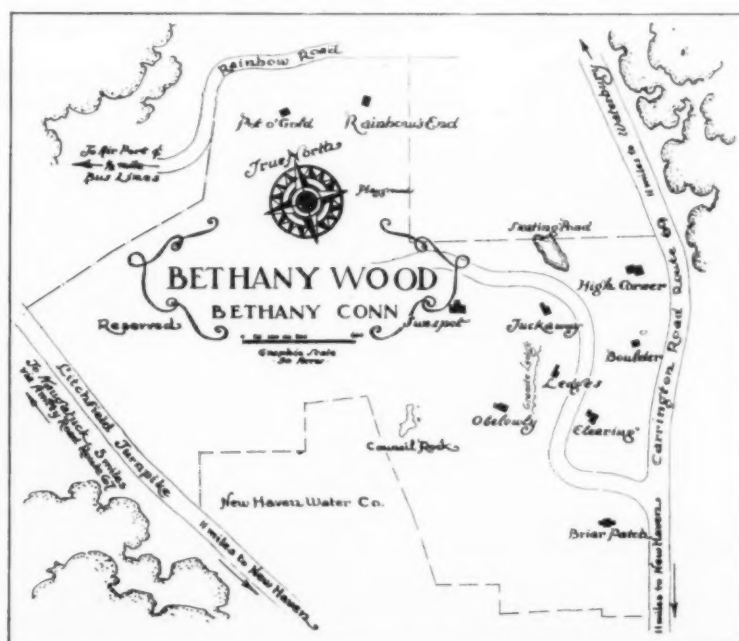
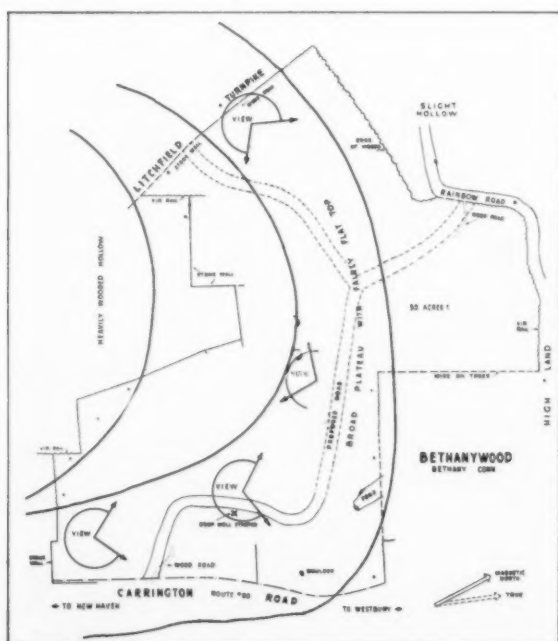


## A SMALL ALL-YEAR COUNTRY COLONY

A wooded tract of 50 acres on the outskirts of New Haven, Connecticut, is being developed by J. Cox Howell as a small all-year colony for ten or twelve congenial families with a common background of cultural interests. The site is at an elevation of over 600 ft. and has a southern exposure with extensive views over the surrounding country. The express motor highway from New York to Boston, proposed by the Regional Planning Board, is intended to pass through Bethany Gap. Improvements have been started on a modest scale. A road has been surveyed on the east end of the site and a well is now being drilled for water. Three houses designed by L. Bancel LaFarge, architect, are in process of construction and will provide comforts and conveniences on a scale commensurate with yearly incomes of \$4,000 to \$6,000.

The community will be organized by a non-profit corporation owning and maintaining the common road, playgrounds and land reserved for protection against encroachment. Individual property lines will be run, so far as practicable, as individual buyers desire. Each individual unit of ownership will be entitled to representation in the corporation by election.

The extent to which community interests can be unified depends on the wishes of the members, but the following possibilities are contemplated by Mr. Howell: (1) Janitor service for the care of paths and grounds, and removal of house wastes. (2) Cooperation with local school authorities in training girls from families in the neighborhood for domestic service, and the establishment of uniform practices among the housewives in the colony in employing these girls to secure maximum satisfaction on both sides. (3) A nursery school or at least an informal nursery group for care and supervision of small children. (4) For children of school age it is suggested that money which would be spent for expensive private schools be applied to the already excellent local consolidated school, enabling it to improve the quality of its teaching staff and its bus service. (5) A flexible schedule of playtime supervision for afternoons and Saturdays and the Christmas and Easter school holidays. (6) Group marketing for furnace oil, milk, laundry and other staple supplies and services. (7) Community exchange of books and periodicals. (8) A community house with or without a guest suite. (9) A pool for wading in the summer and skating in the winter. (10) A safe hill for winter coasting. (11) An inclosed dog park where pets can be left safely in the care of the community janitor. (12) An outdoor fireplace for picnics and story telling.



# TECHNICAL NEWS AND RESEARCH

## THE ESSENTIALS OF PRISON DESIGN

By CHARLES D. WHITE of Lockwood Greene Engineers, Inc.

**T**he principles involved in the design of a modern penal institution do not differ materially in many ways from the principles controlling the design of any building or group of buildings in which highly specialized functions are to be housed. A successful newspaper plant cannot be designed without an intimate and exhaustive knowledge of newspaper methods and production, nor can a prison be successfully designed without an equal and intimate knowledge of prison requirements and prison routine.

It is not sufficient for the architect to read books or articles on prison design, study a few plans in current literature, or pass several hours in a hurried trip through some institution. Prisons must be studied at first hand, carefully and continuously in detail with the warden, the captain of the guard, the steward, the storekeeper, and above all with the maintenance man, who has to dig and delve to find broken or misplaced piping and must maintain constant and uninterrupted service through all sorts of mishaps.

Without this intimate knowledge of actual routine in similar institutions, without a thorough study of the successful types of housing for the various classifications of inmates, the length of time to be served, the program of rehabilitation, the educational methods planned and the trades to be taught, a comprehensive and successful plan cannot be conceived.

It is not the intention of this article to be a compendium covering the subject, nor does it even attempt to give definite details of construction, proper size of cells, or the benefits of cafeteria service versus table service in the mess hall. Its real purpose is to emphasize forcibly to the architect and those in authority who are charged with the construction of the institution the necessity of a thorough study of the problem before the institution becomes a mass of solid and not easily changed construction.

This, then, is the first and most important essential of prison design. It would seem that such a state-

ment is a platitude and obvious to all readers, but intimate contact and observation prove only too truly that all too often the subject is not given the attention it requires.

### DETENTION

A prison is first of all a place of detention and its main purpose is to keep its inmates within its walls. If it fails in this purpose, all its other features will be of little value.

Steel bars and the latest locking and control devices are, of course, a most important part of the equipment of any institution, but many locations to be carefully checked for protection are outside the space in which the inmate may be locked for safe keeping, and are frequently overlooked in the plans.

Toilet rooms, locker rooms, storerooms and similar spaces, not under constant observation, require as much if not more protection than spaces commonly under observation. These spaces are under observation at the time of their use by prisoners, but for long periods are not under observation and for that reason offer an excellent opportunity for uninterrupted work by the prisoner, and he does get access to just such spaces, as reference to the newspapers will prove. Every opening is a hazard, no matter where it may be.

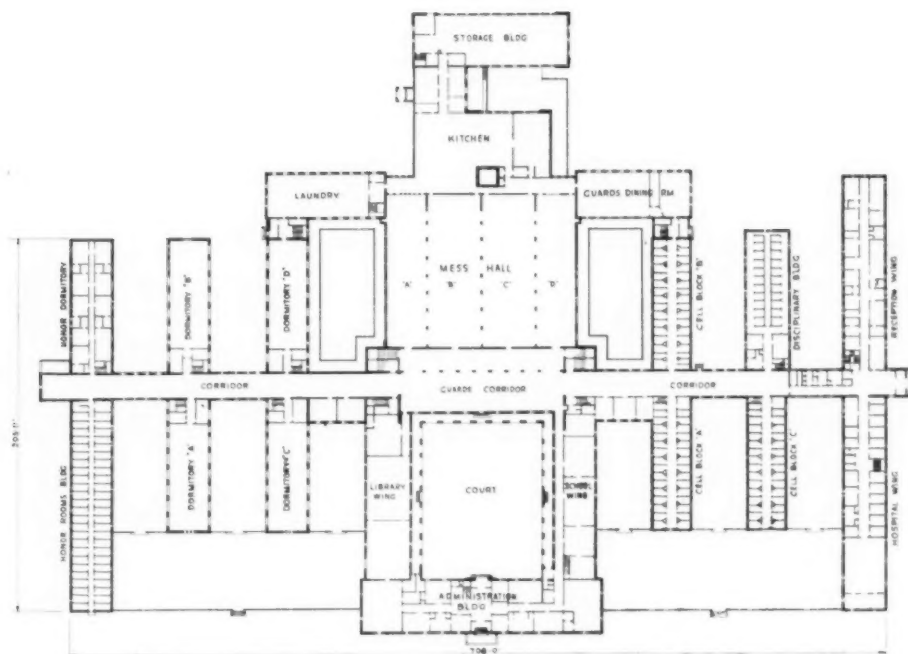
Any place into which an inmate can force his way and hide from the custodian is a source of trouble and expense. An inmate who cannot be accounted for at count periods is to all intents and purposes an escaped prisoner and it may require as much effort to find that inmate as if he were actually outside the walls.

Storerooms and warehouses require protection from without, for more prisoners break into storage spaces than ever break out of prisons. These spaces should also have wire mesh screens to prevent articles being thrown out by inmate workers to be picked up later.

It is important to consider carefully every detail from the standpoint of the inmate, the man who "wants out,"



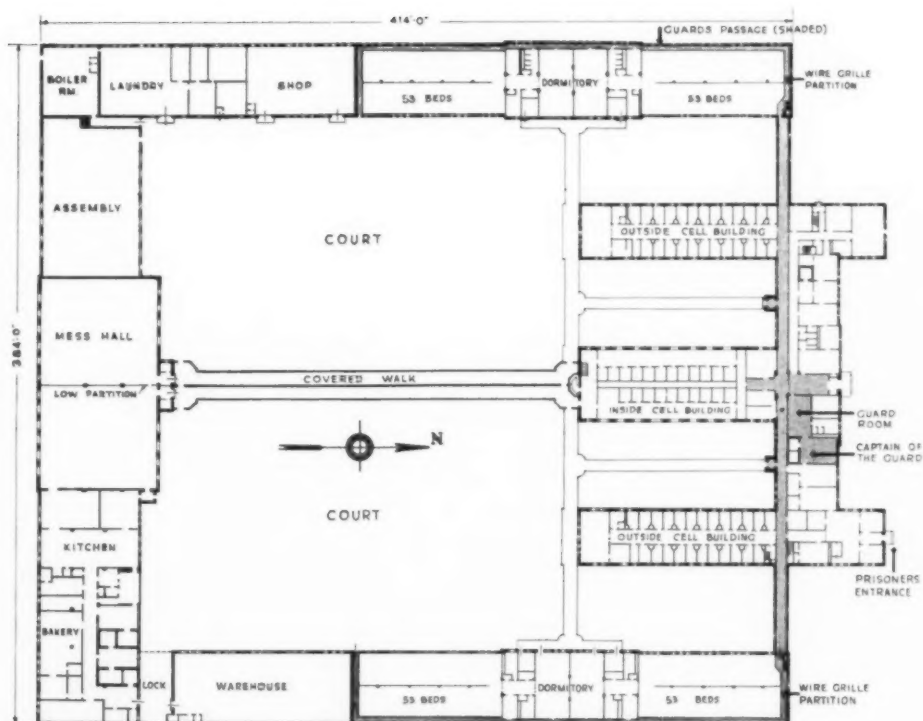
AN EXAMPLE OF CAREFUL PLANNING FOR CLASSIFICATION OF PRISONS



FEDERAL PENITENTIARY AT LEWISBURG, PA.

ALFRED HOPKINS, ARCHITECT

IN THIS FEDERAL JAIL THE PRINCIPLE OF PROTECTION FOR THE GUARDS HAS BEEN CAREFULLY CONSIDERED



SMITH, HYNCHMAN AND GRYLLS, ARCHITECTS

who spends his entire waking moments in scheming ways and means to overcome and defeat the methods of detention.

### PROTECTION

Closely related and of almost equal importance to detention is the problem of the personal safety of individuals responsible for the custody of the inmates. Too many instances are on record of unfortunate injuries or even death itself to permit neglect in planning the institution so that the custodial force can perform its duties with utmost protection from attack and injury. Even in institutions housing only the young or first offenders all precautions should be taken against the possibility of danger. Wire mesh partitions or steel grilles are cheap as compared with human lives.

### OBSERVATION

The ideal plan would be one in which all inmates would be under the constant observation of a single guard. This is, of course, theoretical and cannot be carried out in practice, but the closer in conformity to this theory the institution can be planned, the more effective the custody and the less the cost.

The size of the custodial force, and consequently the cost of operating the institution, is directly controlled by the ease or difficulty of observation and supervision. This essential should be constantly kept in mind in the planning of corridors, stairways, the relation of dormitories to corridors and in the avoidance of all spaces accessible to inmates and not easily supervised which may be sources of trouble.

The location and design of all inlet and outlet grilles, radiator inclosures and similar situations are important as they are likely places in which to secrete dope or other contraband. All doors to refrigerator boxes, closets and similar unoccupied spaces should have observation panels and the light switch on the outside.

### UNAUTHORIZED TRAVEL

Proper control is seriously impaired if careful attention is not given in the planning to prevent travel by inmates in unauthorized sections. If it is necessary for an inmate to pass through a section in which he has no legitimate business in order to reach a section to which his permission extends, then he has a good excuse when found in forbidden areas and the proper control of the institution is seriously affected. It is especially important that the location of toilets, washrooms and locker rooms be planned to prevent the necessity of inmates leaving their own departments.

### MALICIOUS MISCHIEF

Careful consideration must be given in prison design to the element of malicious mischief as an excessively large amount of maintenance expense in institutions may be caused from this item alone.

It has been found, as an example, that in power plants operated by inmates a surprisingly large cost of repairs occurs where mechanical stokers of a type which does not permit firing by hand during a breakdown are used. If the stokers are so designed that the boiler can be fired by hand during a breakdown only a nominal amount of repairs is found necessary.

A detention type of sash may be sufficiently strong to prevent the inmate making an unauthorized exit,

but out of sheer maliciousness he may wreck the ventilator section if not of proper strength. The damage may be of no value to the inmate except for the relief to his pent-up feelings, but it is an added item on the repair costs.

Electric service junction boxes often placed in places accessible to inmates offer enticing possibilities not only of mischief but for secreting contraband. The lock on the box only offers an intriguing pleasure to the resourceful inmate.

### CLASSIFICATION

Under this subject there are really two divisions. The first is that of separating the inmates into groups determined by the need of proper detention for each group, usually referred to as minimum, medium and maximum security.

Maximum security is, in the average institution, not needed for the entire population; in fact in most institutions this class constitutes not over 30 per cent of the prison population.

It is an unnecessary expense to house all types of prisoners in maximum detention conditions at a construction cost of \$3,000 per inmate, when not over 30 per cent require this type, and 30 per cent can be housed under medium security methods for \$2,000 per man and at least 40 per cent can be housed in minimum security conditions at a cost of \$600 to \$800 per man and in many cases for less.

Where an institution is planned in its entirety for a single predetermined type of inmate and class of detention, as is the case in States with such a large criminal population that separate institutions will be built for the different types of detention, this classification would not have to be considered in any one institution. But when an institution must for good reasons house the varied types, this problem of classification should be carefully studied and provisions made for the several types of housing and detention.

The second consideration is that of grouping the inmates so that group and individual harmony can be maintained with the least enforcement of discipline. By grouping of inmates is meant not only the housing of inmates in rooms with four to fifty men but also the separation of inmates into single rooms or cells. These units of housing should include the inside cell block, the strongest type of detention; cell blocks with outside rooms with small and heavily barred windows; dormitories both large and small; honor rooms and honor dormitories for inmates meriting that privilege.

In the discussion of single rooms versus dormitories for the minimum type of detention, there is and can be no final and definite answer. The modern institution will contain both. Some inmates like the privacy of the single room, or are trouble breeders if housed with a group. Some men enjoy the companionship of the dormitory and select it from choice. The dormitory has the advantage of low cost and easy supervision.

This choice of quarters is not allowed the inmates as a mistaken form of kindness but is a practical method of obtaining discipline at a less cost than by custodial control and is more satisfactory to all concerned. With this variety of housing the inmate can by the degree of his conduct progress from the cell block, in which he is confined for the observation period, through the various grades to the honor rooms or dormitories.



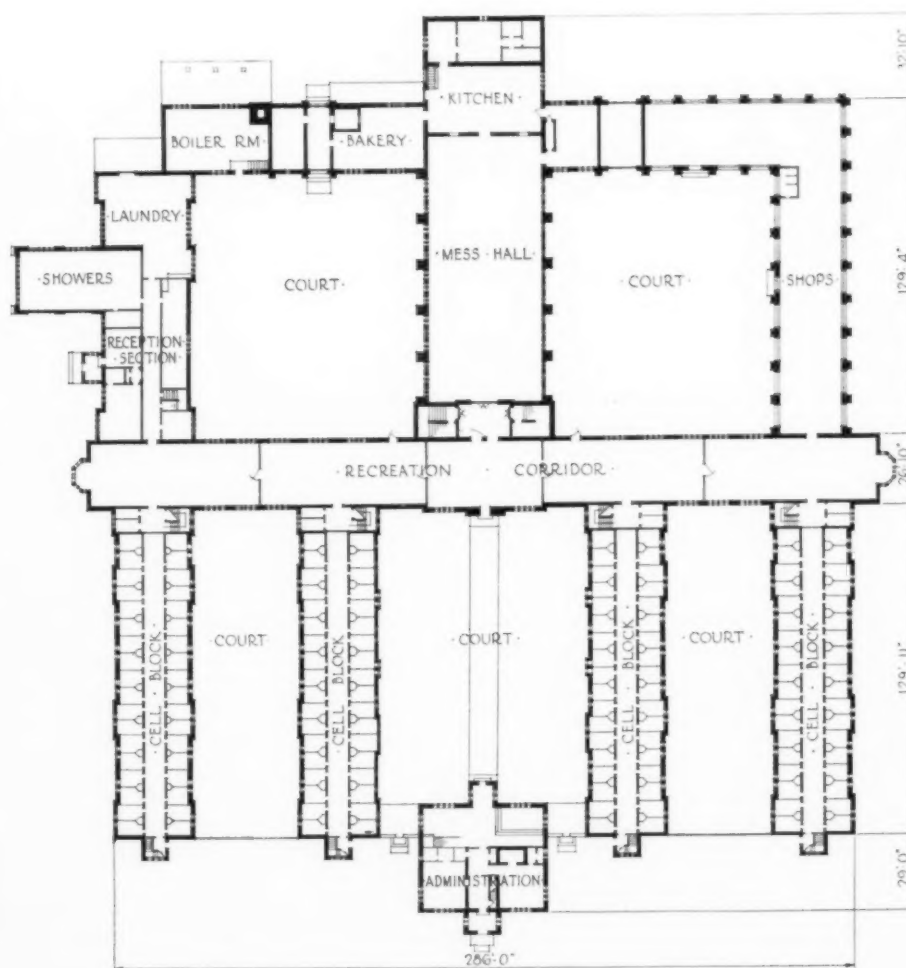
THE BERKS COUNTY PRISON AT READING, PENNSYLVANIA

The main feature of the prison is the group of four cell blocks, each approximately 31 by 130 feet in size, with the administration building, about 53 by 42 feet, between the two center blocks. Across the entire building at the north end of the cell blocks is a recreation corridor 27 feet wide divided into four sections by decorative grilles.

Each cell block contains 72 cells, 36 on each of the two floors. The inside dimension of most cells is 6'2" wide by 9' long. All plumbing is inclosed in a duct on the corridor side of the cell which also provides ventilation through vents to a false chimney on the roof. Heating of cells is done by a steam riser placed at the side of the window.

In the administration building are the main offices, visitors' room, hospital rooms, and dormitories for the guards. Over the reception section, consisting of doctor's office, Bertillon room and clothes storage, and adjacent to the shower baths and laundry, is a large dormitory to accommodate vagrants who come in to sleep.

The buildings, fireproof throughout with the exception of the roof which is erected over a reinforced concrete slab, have bearing walls of concrete masonry units made with limestone aggregate. Masonry trim is of cast stone.







DESIGNED BY ALFRED HOPKINS AND ASSOCIATES, ARCHITECTS

Conversely, the inmate who will not conduct himself in accordance with the discipline of the institution or proves that he is not fitted to be in contact with his fellow inmates has the threat of demotion even to the disciplinary cells always before him.

More important than all other considerations is the possibility that proper classification allows for the separation of the different types of offenders so that at least there is not so much possibility of the prison becoming a college of crime in the education of the younger by the older criminals.

#### **FLEXIBILITY**

It is a well established fact that no new institution has been used in its several parts after occupancy as may have been planned. It seldom happens that the person who is selected to manage the institution had much, if anything, to do with its planning and construction. The type and classification of inmates may be changed and the methods of routine and custodial procedure may be revised. This is not unusual and is to be expected and anticipated.

One large institution recently completed was designed with this point clearly in mind. No two experts or authorities would agree on the ratio of single rooms and dormitories and it was seen, after much study, that no fixed ratio would be satisfactory extending over a period of years. With this consideration as a controlling motive, a single room unit was adopted and the layout of all housing sections was established by this measure. All windows, radiators, doors and partitions were so arranged that each wing could be readily changed at any time from single rooms to dormitories, or vice versa, by the simple expedient of

adding or removing partitions without any material structural or mechanical changes. The wisdom of this planning was proven, for within six months after opening the institution, the need for more single rooms developed and it was a simple matter to make the change. In the same institution provision was made for additions to any of the wings so that extensions could be built in the future without material change in the existing structure.

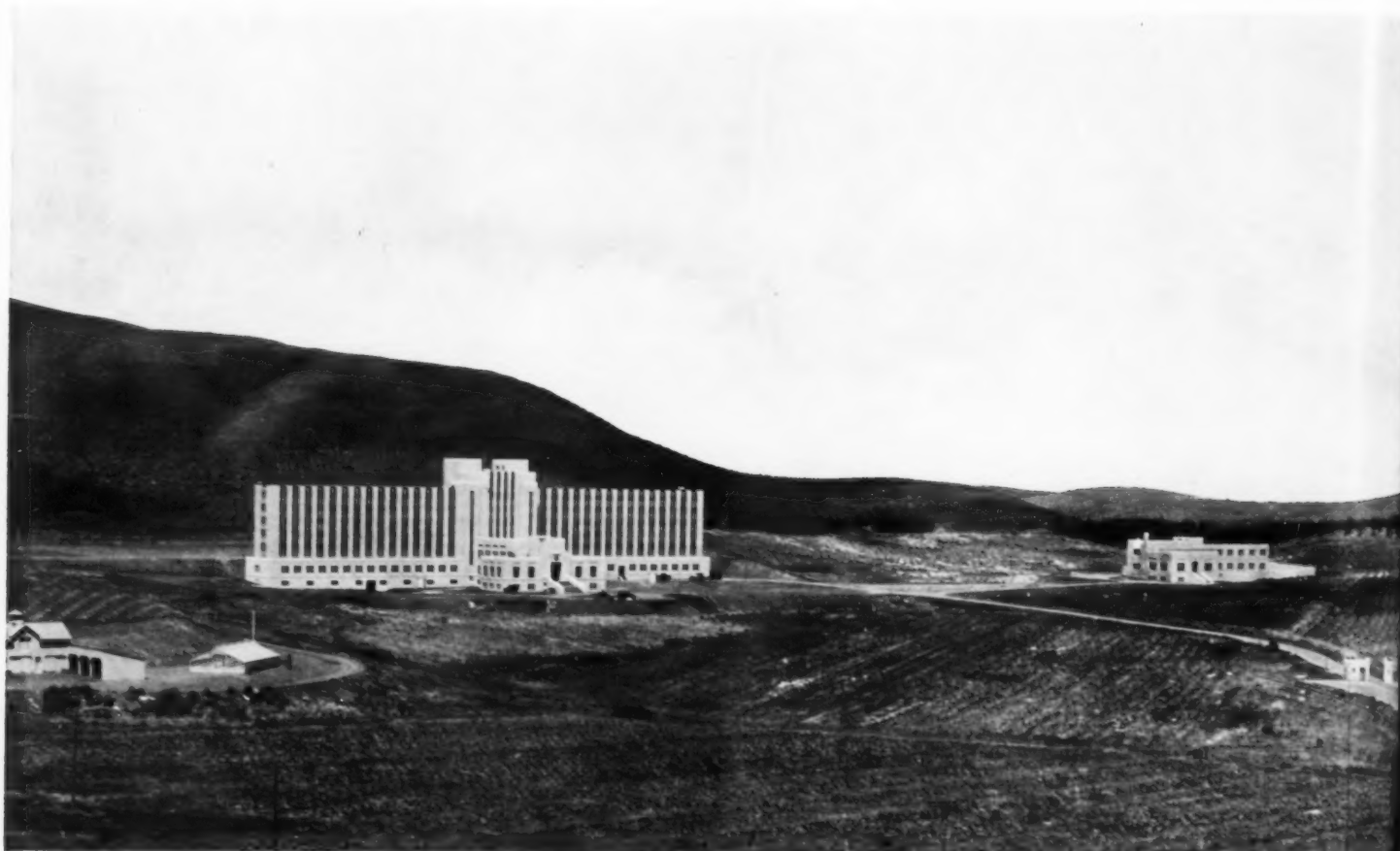
It is also impossible to foresee and plan the relative size of each division but if the plan is such that an overcrowded section can be continued into a less populous area, then it is a simple matter to vary the allocation of areas as needs demand.

#### **SUMMARY**

These are the essential elements in planning a penal institution which should be given special attention, but they are by no means a complete list. Obviously in an article of this length even these can only be treated in the briefest manner.

The dominant idea which the writer has endeavored to stress is the importance and absolute necessity of intensive study on the part of the architect before he even makes his first rough sketches. Very few architects have had an opportunity to design a penal institution and the number who have designed their second one is small indeed. So even the experience of profiting by mistakes has been denied to many.

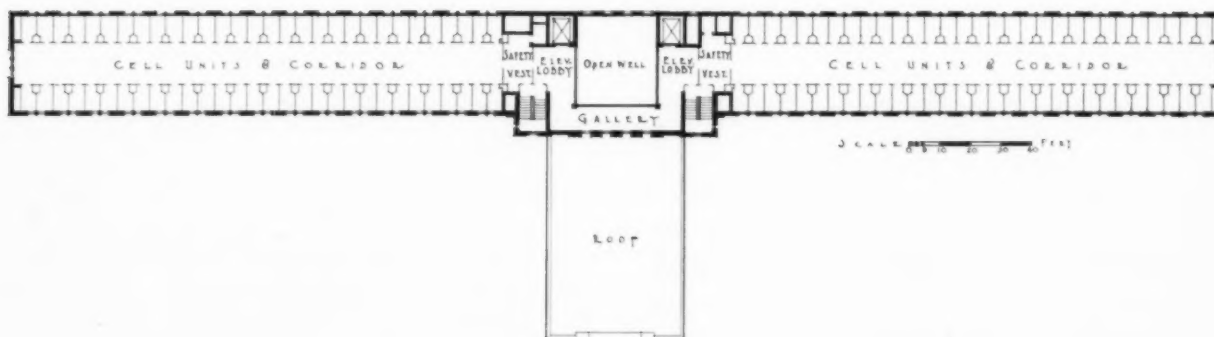
Equally important is the fact that overcrowded conditions in many of the Federal, State and county institutions and the availability of Government funds make likely an unprecedented amount of construction in this type of building during the next two years.



FARM GROUP

MEN'S BUILDING AND ADMINISTRATION

WOMEN'S BUILDING



PLANS OF MEN'S BUILDING  
AND ADMINISTRATION SECTION

# SAN FRANCISCO COUNTY JAIL FOR MEN AND WOMEN

ALBERT F. ROLLER AND DODGE A. REIDY, ARCHITECTS ASSOCIATED

This new institution is an outside cell block type, each of the 528 cells having its individual window only for the admission of direct sunlight. The windows may be opened for cleaning but are ordinarily kept closed because each cell is mechanically ventilated and the temperature thermostatically regulated. Instead of employing the old system of vertical bar grilles over each opening there has been incorporated into the window itself, as an integral part, horizontal bars of tool-resisting steel welded into frames of similar material, thus providing maximum protection without unsightly effects.

Another feature is the single occupancy of cells, instead of the usual custom of placing two or more inmates in every cell. Each cell is provided with its own sanitary appliances.

The men's and women's buildings are both constructed of fire-resisting materials throughout. The structural floors and walls are of reinforced concrete, all partitions and stairs are of fireproof materials and the windows and doors throughout are of metal. Due to the nature of occupancy, prohibiting the introduction of numerous exits and fire-escapes, every precaution was taken in the structural design of the buildings to insure the safety of those housed therein.

The main (or men's) building, T-shaped in plan, is approached by a wide stairway to the administrative portion which is two stories in height. The connecting service portion between administration and cell blocks is three stories in height. The cell block section or main mass is seven stories high, the center portion terminating in additional stories housing mechanical equipment. This step-back facade was prompted by the contour of the low, rolling hills against which the building is imposed, in the middle of 250 acres of ground.

The lower floor of the main building is devoted to inmate-receiving rooms, shower and dressing rooms, barber shops, clothes and shoe repair shops, boiler and battery rooms, garage and storerooms. The first floor contains administrative offices, visiting rooms, chapel and classrooms, food and clothing storage rooms, laundry and kitchen facilities. On the next floor are two dormitories, each with a capacity of 60 beds, and a complete infirmary with 3 five-bed wards, doctors' and dentists' reception and treatment rooms and a sun deck behind high walls for convalescent inmates.

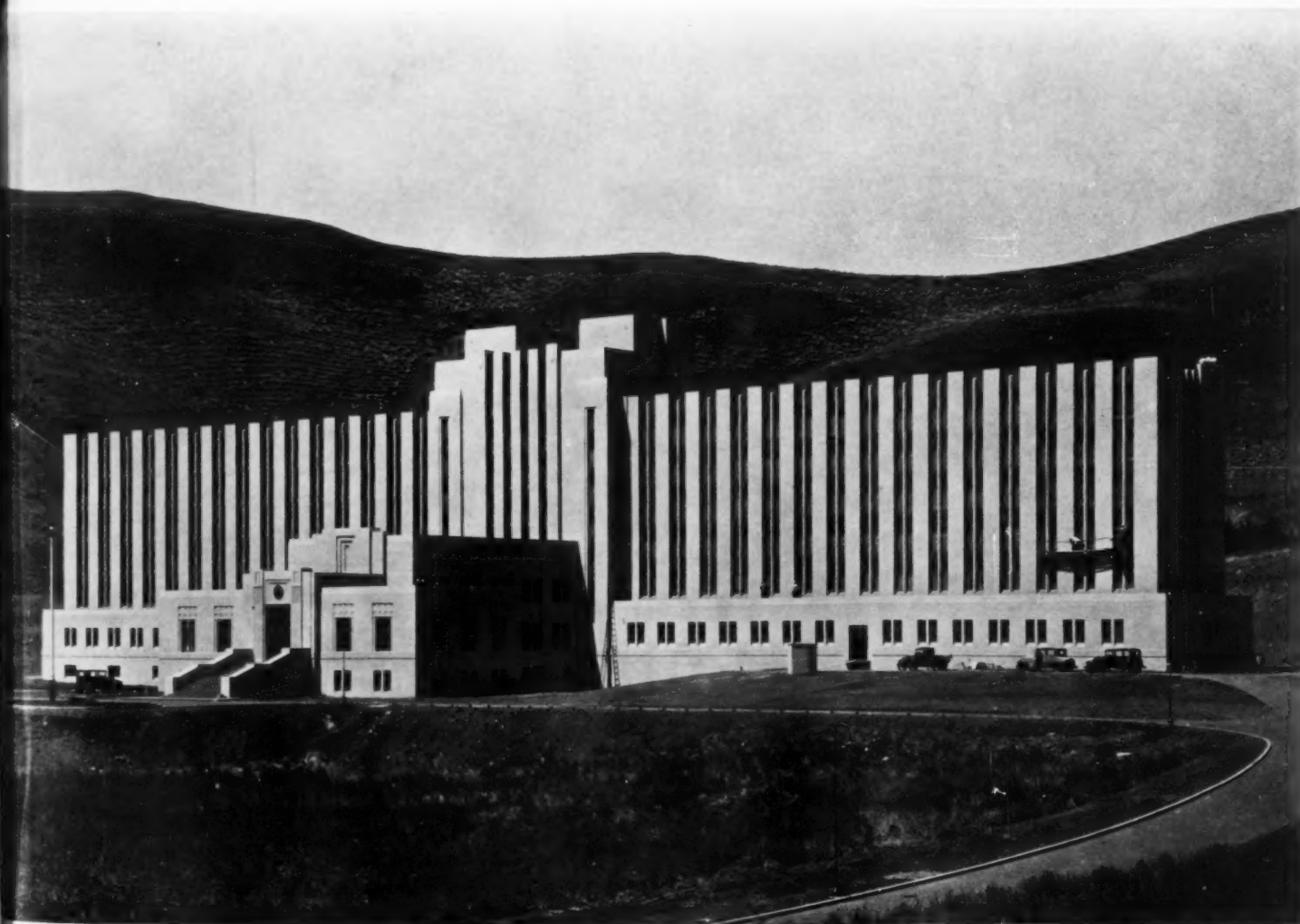
The next four succeeding floors are devoted to cell blocks—each floor containing four banks of 30 cells, a total of 480 individual cells on four floors. The tower or central portion of the building, above the cell blocks, houses the mechanical equipment of the elevators and the fan equipment serving the entire building with washed and thermostatically controlled air.

Both buildings are equipped with a complete radio broadcast and address system through which from a central control office orders or instructions can be issued to any of the personnel or inmates. This is in addition to a silent code signal system and a house telephone system for use of the guards.

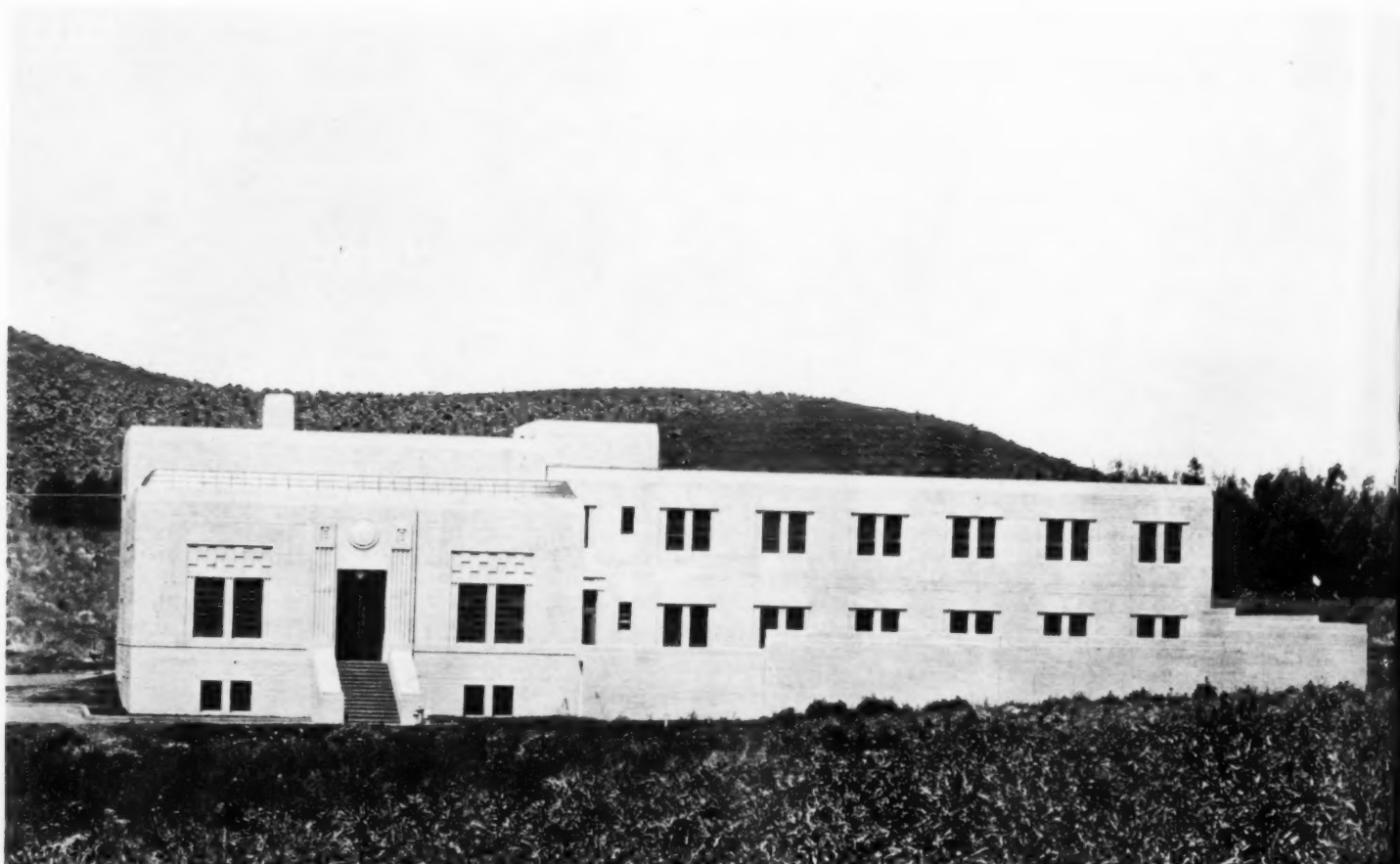
Water for domestic consumption and sanitary requirements is brought to the site a distance of approximately  $3\frac{1}{4}$  miles and stored in sufficient quantities to provide a week's supply in the event of a shut-down of the pumps.

As a part of the farm group, consisting of stables, corrals and farm equipment, sheds and a greenhouse for the propagation of young plants and vegetables, is a sewage disposal plant with all units in duplex including dual chlorination. The buildings of the farm group, like the two major buildings, are of reinforced concrete.

FRONT ELEVATION OF MEN'S BUILDING



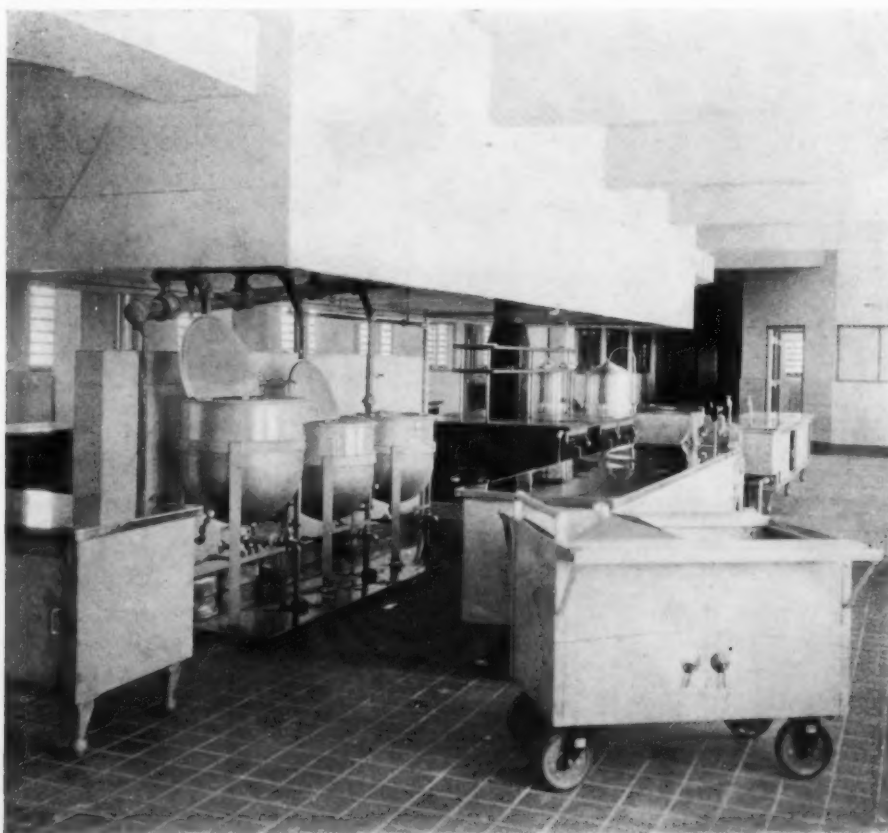




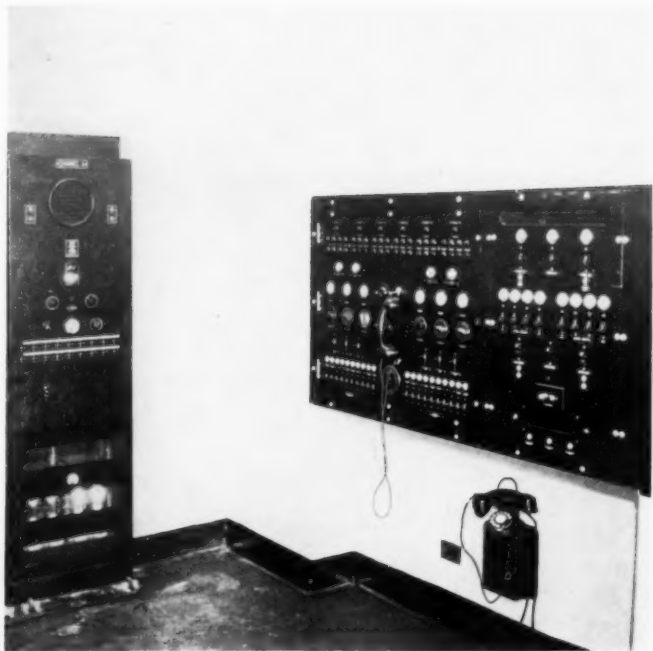
FRONT ELEVATION OF WOMEN'S BUILDING

# SAN FRANCISCO COUNTY JAIL FOR MEN AND WOMEN

DETAIL VIEW OF KITCHEN



The women's building, situated 600 feet from the main building, is a two-story L-shaped structure and contains in addition to 48 separate rooms for sleeping purposes all the necessary service facilities, including recreation room, dining room, sewing room and a large serving pantry. The food is supplied from the main kitchen to this building in electrically heated carts, thereby reducing to a minimum the capital investment in kitchen and refrigeration equipment and eliminating the double overhead of maintaining two food preparation departments. This building is also served with steam from the main boilers but contains its own ventilating equipment. Recreation yards, or inclosures, are provided for both buildings and in addition, the women's building has a spacious sun deck with walls of concrete and glass.



CONTROL BOARD IN CHIEF JAILER'S OFFICE



DETAIL OF TYPICAL CELL

ALBERT F. ROLLER AND DODGE A. REIDY, ASSOCIATED ARCHITECTS

VIEW OF TYPICAL CELL BLOCK IN MEN'S BUILDING



## CHECKING SCHEDULE

*A complete check list of prison design would require more space than a magazine article could allow. A partial list of many items that have been overlooked or improperly designed in actual practice is given herewith, however, to emphasize the several points discussed in this article. Many of these items may appear obvious but nevertheless did not so appear to the designers of various institutions for they are all observations recorded by Mr. White.*

### SITE

- Ample supply of good water.
- Railroad facilities.
- Farm land: At least one acre per inmate; minimum 800 acres.
- Avoid locations where fog is prevalent.

### INCLOSURE

- Minimum: Cyclone wire fence as a dead-line.
- Inclosure wall: Avoid projecting piers, arches, brackets, and the like.
- Vehicle trap.
- Pedestrian trap: Designed to require two guards, one of whom is protected from any possible attack, to control and operate.
- Automatic recording device for concealed weapons or tools.
- Gas stations controlled by protected guard.
- Guard towers: Full visibility (no small windows), toilet, heat, telephone, flood light with flexible control; entrance only from outside of inclosure.

### ADMINISTRATION

- Check list of civilian personnel to insure ample administration office space. Warden usually requires his offices away from the common center. Assistant, usually the custodial office, requires offices near control center.
- Chief clerk: Easily accessible to public.
- Record vault.
- General clerical: Large space divided by glazed movable office-type partitions, preferably metal, allowing complete observation and flexibility. Avoid solid partitions.
- Large storage for supplies.
- Vault for books and records.
- Vault or safe for valuables and cash.
- Paymaster convenient to clerical corridor with safe or vault.

### PUBLIC AREA

- Waiting space with toilets.
- Avoid windows opening onto prisoners' courts or yards; if necessary, guard with fine mesh fixed screens.
- Attorneys' rooms for conference (where institution has persons awaiting trial).

### VISITING ROOM

- Access by prisoners through controlled corridors.
- Access by visitors as direct as possible.
- Physical separation of prisoner and visitor by (1) glazed screens with speaking device, (2) wire grilles, (3) table with center partition extending to floor. Depending on type of inmates housed.
- In some cases examination of visitors should be provided for by small examining rooms.

### CUSTODIAL HOUSING

- A number of guards should have living quarters in the institution for emergency:
- Single rooms with lavatory.
- Shower and toilet rooms.
- Lounge.

### GUARD CENTER

- Locker room and duty room: Toilet for guards.
- Office for Captain of Guards.
- Key vault.
- Telephone equipment room.

### RECEPTION OF PRISONERS

- Provide trap or inclosure so that prisoners arriving in bus cannot make a break.
- Avoid elaborate suite of rooms for reception, bathing and dressing of new inmates.
- Provide large room in which are showers, toilet, benches and small storage for prison clothes for maximum incoming squad.
- Room for photography and finger printing.
- Doctors' room.
- Record Clerk's office.
- Civilian clothes: Storage for clothes, valuables and personal effects.
- Hold cells for squads arriving too late for day's routine and for observation.

### MESS HALL

- Quarry tile floor and base.
- Ample floor drains.
- Hose bibb connections.
- Guard's control station.
- Wire grille partition for patrol guard.
- Acoustical treatment on ceiling.
- Cross light and ventilation.
- Not less than two divisions: Partitions solid to height of seven feet, wire grille above if required.
- Built-in tear gas stations operated from guard's control station.
- Loud speaker connection.
- Provide sufficient space for waiting lines if outside communication is used.
- Tables, if wood, of heavy construction with linoleum tops.
- Use heavy benches and not separate stools or chairs.
- Metal tables and benches secured to floor.
- Serving tables: Use simple type without warming closets. One serving unit for each 100-125 men. Hot tables of stainless steel on pipe frame with two round containers 18" diameter, two oblong 16" x 18", all 11" deep, with covers and cover handles. Flush removable plates in two sections to allow use as plain table when all hot containers are not in use. Bake pans can be set on table and served from direct.

### GUARDS' AND OFFICERS' MESS

- Cafeteria service preferable to table service.
- Use small standard hot table, dishwashing machine, separate guards' kitchen.

### KITCHEN

- Quarry tile floor and base.
- Impervious wall surface.
- Ample floor drains.



Depression in floor under kettles, walkway at back of kettles at floor level.

Steel removable mat in depression in front of ranges. Ample light and cross ventilation.

Monitor type roof advisable for light and ventilation.

All partitions glazed for observation.

Ranges, bake ovens, and so forth, set on tile base.

Equipment at walls instead of in center.

Hot and cold water supply over range bank.

Steam kettles to have gate valve on bottom of kettles instead of draw-off cocks.

Hot and cold water supply to all kettles.

Cook's table anchored to floor.

Pot and pan rack over Cook's table supported on standards from table and not hung from above.

Use minimum number of drawers in equipment.

Sinks not less than 30" x 30" x 16" made of stainless steel with all corners rounded. Drain valves instead of sink plugs.

Doors into mess hall and other rooms of ample width for trucks, etc.

Ventilating fan for range hood.

Ventilating ducts will condense much moisture; pitch ducts and make provision for drainage.

Screens in range hood vent easily removed and cleaned.

#### **DISHWASHING**

Use separate, inclosed vented room for dishwashing. Dishwashing not a part of kitchen.

Quarry tile floor and base, impervious wall surface.

Ample floor drains.

Double compartment sink.

Dishwashing machine, stainless steel, not less than two tanks; advisable to have two for breakdown.

Large doors for dish trucks.

Separate locked room for clean dishes. Not many shelves required.

#### **STEWARD'S ROOM**

Raised floor, glazed partition, located for observation of kitchen.

Ample size as several clerks, runners, and others, will occupy this room.

#### **VEGETABLE PREPARATION**

Floor and walls as for kitchen. Ample size as much work is done by hand. Ample drains.

Vegetable sinks, not less than 30" x 30" x 16", stainless steel, gate valve waste.

Ample floor drain under vegetable peeler.

Spinach washer.

Vegetable peeler.

#### **BAKERY**

Ample light and natural ventilation.

Floor, walls and drains as for kitchen. Minimum of machinery. Flour elevators, molders, and the like, difficult to keep clean.

Flour sifter makes better bread.

Dough mixer need not be large, since 1 pound of bread per man a day is unit and four runs of bread can be made per day.

Proof box or room with heat, steam jet and floor drain.

Ample table top surface for hand molding.

Bun divider advisable.

Avoid built-in or inclosed bread storage. Use metal racks, wire shelves, with duck covers. Racks have storage capacity of one rack per 500 men.

Doughnut depositor.

Tilting steam kettle.

Mixing machine.

Hand bread slicer.

Ventilate flour storage.

Small refrigerator for yeast, milk, and so on.

#### **REFRIGERATION**

Minimum for Steward's daily supplies.

Meat, dairy and vegetable boxes opening into meat preparation room which acts as a vestibule to boxes.

Ice box for fish.

Garbage room.

Main refrigeration for Storekeeper in warehouse.

Minimum: Fresh meat (not less than carload capacity with overhead track and hangers), smoked meats, dairy, vegetable storage.

Cold room for roots.

Blanket storage.

All doors to boxes to have observation panels, light switches on outside.

Refrigeration section should not be a thoroughfare for other utilities.

#### **SCHOOL**

Linoleum floor covering for rooms and corridor.

Classrooms and corridor partitions glazed office type.

Acoustical treatment on ceiling.

Classrooms not like standard civilian schools. Most classes are small.

Arm table chairs. No fixed seats or desks except for special work.

#### **LIBRARY**

Linoleum or similar flooring.

Acoustical treatment.

Work room.

Book storage.

Supplies storage.

Librarian's office.

#### **HOSPITAL**

In general good hospital practice should be followed with strict attention to detention and observation.

Ample space should be provided in office portions as trustee orderlies and clerks are used in larger numbers than in a civilian hospital.

Officer of the day convenient at control center.

Barber shop for hospital inmates.

Terrazzo or painted cement floors with 6'0" linoleum insert and acoustical treatment on all corridors.

#### **PATHOLOGICAL LABORATORY**

Gas, compressed air, vacuum line.

Locks on all chemical hood doors.

Lavatory.

#### **X-RAY**

Check operating room for size and room for wheeled stretcher.

Toilet and lavatory for Technician.

Toilet and lavatory for patients.

Water cooling for X-ray developing.

Ventilation for dark room.

Lavatory in dark room.

#### DENTAL CLINIC

Not less than two chairs.  
Work room with sink and plaster trap; electric outlet for small motors.  
Dental X-ray.

#### UROLOGICAL

Ample supply of straddle sinks.  
Scrub up sink for doctor.

#### HYDROTHERAPY

Tile floors and base and walls if possible.  
Ample floor drains.  
Sitz bath raised on platform, away from wall and not controlled from control table.  
Set control cabinet on tiled base to prevent water running under marble sides.  
Slight pitch from control table to shower inclosure to drain water from nozzle streams.  
Set bidet jet in this drain.  
All metal cabinets on tile or terrazzo base.

#### SICK CALL

Daily average 1 per 10 to 20 inmates.  
Waiting space; examination room.

#### DRUG ROOM

Vault or safe for narcotics, alcohol, and so on.

#### AUDITORIUM

Acoustical treatment.  
Window dark shades.  
Conduits for control and operation of sound devices from operator's booth to stage.  
Gas stations controlled from guard station.  
Protected guard station.

#### BAND ROOM

Highly desirable in large institutions. Band, orchestra and musical instruction important features in discipline.  
Opportunity to practice where noise is not objectionable.

#### WAREHOUSE

Receiving space with floor scales, beam in office.  
Office for Storekeeper.  
Toilet facilities.  
No access except for authorized persons.  
Loading platform, with ramp to ground.  
Separate room for coffee, spices and dry groceries with coffee and spice grinder.  
Cold room for blanket storage.  
Vault for files, saws, cutting pliers, and so on.  
Wire grilles  $\frac{1}{2}$ " mesh on all windows in addition to detention grilles.

#### POWER PLANT

Flush platform scales for coal.  
Testing equipment for boilers, CO<sup>2</sup> recorder, draft gauge, and the like.  
Boiler room, coal bunkers and ash handling devices away from kitchen and bakery to prevent infiltration of dirt and dust.

Mechanical stokers should be of type allowing firing of boiler by hand in case of breakdown.

Electric standby service where generating plant is used.

Two sources of power if public utility current is used.

All switchboards, transformers, and the like, under locked protection.

All electric panels in locked rooms, not in corridors or accessible to inmates.

Red, green and white lights at top of stack or tower controlled from guard center for use in escapes or to notify of capture.

Provide emergency lighting for operating rooms, mess hall and all inmate corridors and cell houses.

#### CONSTRUCTION NOTES

All stairway doors with observation panels.

All office doors glazed except those that are strictly private.

No glazing below lock rail height.

All doors to dormitories and outside rooms should have observation openings, glazed or grilled.

All clerical and school doors and partitions glazed.

Check shop and other doors for size to allow passage of machinery, material and finished products.

Doors or panel at least 8 feet wide for laundry machinery.

Hollow metal door jambs in preference to wood and in all cases cut off at top of base.

Check anchorage and weight of all frames with swinging iron solid or grille doors.

When cell toilets discharge back to back into common line, provide fitting designed to prevent flushing across.

All shower baths should have ample drains, not less than 9" face plate; the 3" type is almost useless.

Check for curbs at front to prevent water flowing onto outside floor. Such faults are all too frequent.

Pedestal type of urinal most satisfactory in every way.

Wall closets secured to both floor and wall are subject to breakage by shrinkage movement.

Poured reinforced concrete in smooth lined forms is very successful in cell and dormitory partition construction. The use of plaster should be avoided in all except civilian quarters.

Grille front cells should have floors 2" above corridor floors to allow washing of corridor floors without flooding cell floors. It also prevents rusting of steel grilles in cell front.

Check for all nooks and angles not under easy supervision. Avoid stairways which afford lurking places for inmates with murderous or malicious intentions.

Check for all unprotected openings not guarded by grilles. Every opening is a weak spot in detention.

Provide grilles and access for guards so that all duties of the guards—operating cell door control boxes, and so on—can be performed as far as possible without possibility of inmates attacking guards.

Provide by gun ports or galleries means by which all cell blocks can be controlled by rifle fire. Such openings may prevent a serious affair merely by their threat.

# NEWS

## OF THE FIELD

Frederick S. Cates, architect, has opened an office for the practice of architecture, and residential development, in Jacksonville and vicinity, at 1202 Lynch Building, Jacksonville, Florida.

Announcement is made of the withdrawal of Robert Helmer, architect, from the firm of Halsey, McCormack & Helmer, Inc. Mr. Helmer will continue the practice of architecture, independently, at 219-50 141st Avenue, Springfield Gardens, Long Island, N. Y.

The firm of Dreisoerner & Leech, architects, regretfully announce the death of Mr. Henry Dreisoerner. Under the direction of Mr. Norman A. Leech, surviving partner, the firm will continue under the same name at the old address, 3828 Arsenal Street, St. Louis, Mo.

Frank J. Forster and R. A. Gallimore, architects, have moved their offices from 500 Fifth Avenue to the seventh floor, 19 East 47th Street, New York City.

William Paul LaVallee, architect, announces the removal of his office from the Chamber of Commerce Building to 160-10 Hillside Avenue, Jamaica, Long Island, N. Y. Mr. LaVallee is supervising architect for the United Associates Corp. of Jamaica which is at present constructing 300 residences at Douglaston, Mineola, and Bellmore, Long Island; he is interested in receiving literature and samples of modern building materials.

Frederick Mathesius, architect, has removed his office from 16 East 41st Street to the Architects' Building, 101 Park Avenue, New York City.

An office for the practice of architecture has been opened by Will Young, architect, at Fairhope, Alabama. Mr. Young would like to receive samples and literature from manufacturers.

The firm of Haralson & Nelson, architects, of Fort Smith, Arkansas, has been dissolved except that all work at present under contract will be carried out by that firm. Joe J. Haralson has formed an association with Ralph O. Mott and will continue the practice of architecture under the firm name of Haralson & Mott with offices at 229 Merchants Bank Building; E. Chester Nelson will continue the practice of architecture with offices at 427 Merchants Bank Building, Fort Smith, Arkansas.

The LeBrun Traveling Scholarship of \$1,000 for 1935 has been awarded to Harry A. Gnerre of Mount Vernon, N. Y., according to an announcement by William F. Lamb, chairman of the Scholarship Committee of the New York Chapter of the American Institute of Architects.

The Department of Architecture of the University of Pennsylvania announces that two graduate scholarships covering tuition fees are being offered to qualified graduates of Schools of Architecture. Those interested should file an application for admission to the University with the Dean of the School of Fine Arts, as a requirement for consideration. Samples of work should be submitted not later than May 15 with three letters of recommendation. The Lowthorpe School of Landscape Architecture for Women announces for the scholastic year 1935-1936, a scholarship amounting to the cost of tuition (\$500). Candidates for this scholarship must be over twenty-one years of age and must have their bachelor's degree from an accredited institution, or experience which has fitted them to undertake professional training in this field. The award will be made after a most careful consideration of the personal record of the applicant. Those interested should send in their qualifications to John A. Parker, director, Groton, Massachusetts.

### CALENDAR OF EXHIBITIONS AND EVENTS

May 3-4	Low-cost housing conference at Atlanta Biltmore Hotel under the auspices of Georgia School of Technology.
May 4-12	Annual Building Exposition in San Francisco.
Until May 14	Exhibition of African Art, Museum of Modern Art, New York City.
Until May 15	Industrial Arts Exposition at Rockefeller Center, New York City, under auspices of National Alliance of Art and Industry. Model of Frank Lloyd Wright's Broad Acre City.
May 15	Closing date for applications for architectural scholarship at School of Fine Arts, University of Pennsylvania, Philadelphia.
May 28-30	Sixty-seventh convention of the American Institute of Architects in Milwaukee.
June 23-26	Housing congress of the International Housing Association in Prague.
July 16-20	Fourteenth International Housing and Town Planning Congress in London.
October 10-19	Architectural League Exhibition, Grand Central Palace, New York City.
October 15	Closing date of eighth annual small house competition conducted by House Beautiful magazine, 572 Madison Avenue, New York City. Rules and conditions sent on application.

The first all-Union Congress of Soviet Architects is shortly to take place in Moscow. Eminent architects of Western Europe and America are being invited to the Congress. The Architects Society of Ohio is a development of the former Ohio State Association of Architects. Changes in membership regulations will enlarge the prospective membership from 300 to 850.

A conference on low-cost housing is to be held under the auspices of the Department of Architecture, Georgia School of Technology, on May 3 and 4. The headquarters will be at the Atlanta Biltmore Hotel, where exhibitions from the TVA, the Rural Rehabilitation Office, and the PWA Housing Division will be on display. The subject matter will be both urban and rural housing, and discussions will be mainly along technical lines, including consideration of planning, design, materials, structure, and equipment. Speakers will include Col. Hackett, Harold D. Hynds, and David Williams of Washington, W. Pope Barney of Philadelphia, Earl S. Draper, Roland Wank, and Charles Barber from the TVA, Knoxville, Tenn., and others. Besides the technical discussions, there will be a general consideration of housing with a talk by C. F. Palmer, accompanied by moving pictures of foreign achievements in housing. Teheran (the Capital of Iran, a city of about 300,000 people) is planning to build a stock exchange for natural products, paper money and stocks. An outline on the scale of 1:200 is desired for the whole project: basement, ground floor, first floor, the façade, as well as information on square meters of surface and cubic meters of space in the building. For the best solution a prize of £750 is offered, on condition that the winner of the prize executes the plan necessary for the construction, according to suggestions given by the management of the Bank, on a scale of 1:100. The plan should be presented at the National Bank of Iran before June 1. Further information may be obtained by writing to the Czechoslovak Consulate General, 1440 Broadway, New York City.

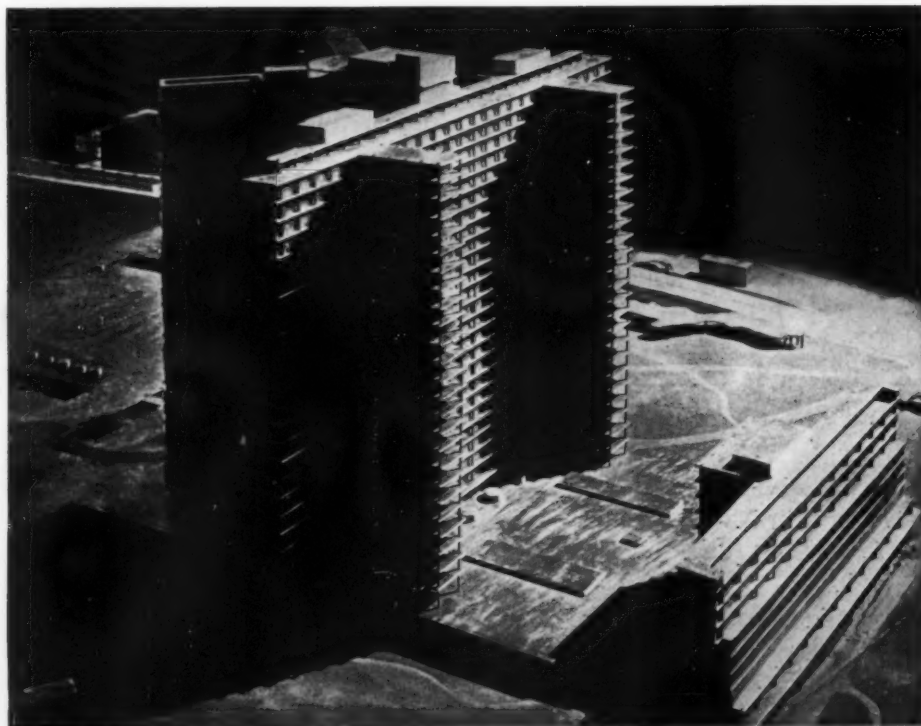


## IN THE JUNE ISSUE



*Photograph by Whittington*

LOS ANGELES COUNTY GENERAL HOSPITAL  
DESIGNED BY ALLIED ARCHITECTS ASSOCIATION OF LOS ANGELES



*From Cité Hospitalière de Lille*

MEDICAL CENTER DESIGNED BY PAUL NELSON, ARCHITECT

**Medical Centers** showing trend toward the unification of hospital, sanatorium, correctional and welfare facilities of a locality, whether a community of twenty-five thousand or one of several hundred thousand population. This study coordinates recommendations of specialists for the care and cure of the sick in medical centers.

**Medical Buildings.** For reasons of economy, a single building for medical diagnosis and hospital facilities is becoming increasingly popular. Its planning for completeness of services deserves analysis. Examples of this type of building will be shown.

**Health Centers.** A field of design activity for the architect is implied by the emphasis now being placed on sickness prevention, semi-public care of the sick and aged. The health center is intended as a health service station for a community. In some instances recreation and occupational therapy are involved. From the requirements of this new building type the architect can create the suitable plan and building setting to administer health service effectively.

### Other Features

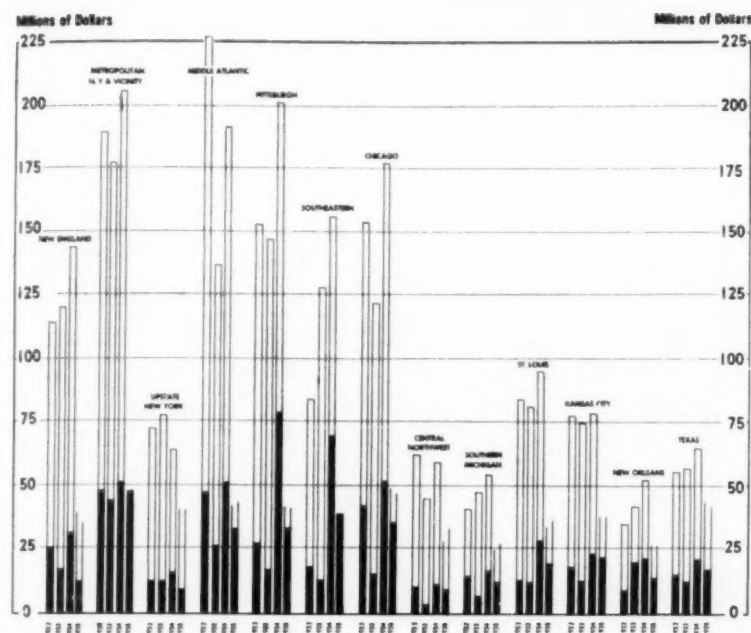
Medical service buildings eligible for Federal loans.

Lighting the House—a portfolio of lighting fixtures selected as examples of good industrial design.

Building trends.

Book reviews.

# BUILDING TRENDS & OUTLOOK



**CONSTRUCTION AWARDS BY MAJOR DISTRICTS**  
Bars indicate annual totals for years 1932 - 1934, inclusive; portions in black show cumulative totals through March of each year.

## RESIDENTIAL BUILDING MAKES MARKED IMPROVEMENT IN APRIL

By L. SETH SCHNITMAN, Chief Statistician, F. W. Dodge Corporation

**T**HE April contract volume for residential building was by far the most favorable factor in the otherwise unspectacular picture of current construction activity. In fact, the total for residential construction was larger than that shown for any other month since the closing months of 1931. Coming on top of a substantial gain in March and an increase of about 23 per cent for the first quarter of 1935 as compared with the corresponding period of 1934 the April figures are even more encouraging.

Residential awards totaled about \$42,000,000 in the 37 eastern States as against only \$22,635,700 for April 1934 and \$32,209,400 for March of this year.

The April total for housing facilities was about one-third of the total volume for all classes of construction; this, too, is a significant development since, in the recent past, residential building has formed far smaller a proportion of the construction volume than is customary for this branch of activity.

Virtually every important section in the area for which comprehensive data are available shared in this general residential building improvement during April. Curiously enough the betterment occurred without any important amount of so-called low-cost housing undertakings of the Federal government.

The total volume of construction in the 37 eastern States approximated \$124,000,000 for April; this contrasts with \$122,940,500 for March and \$131,157,000 for

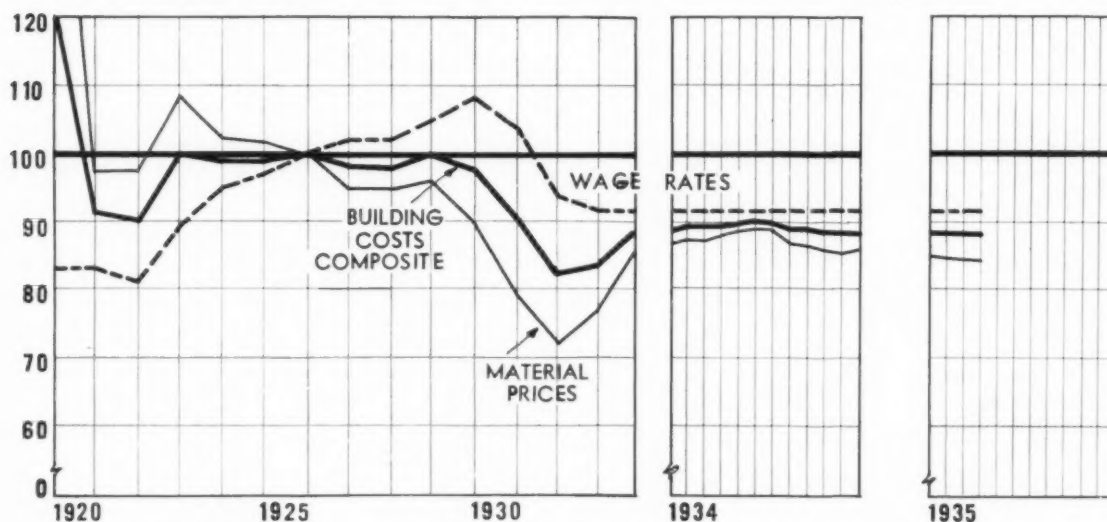
April of last year. Of the April total a far greater amount was private construction than was true of either the March total or that for April of last year. This, too, is an encouraging note; in fact private construction during April was higher than for any other month since the beginning of 1932.

Soon the new program of public works construction will be under way. A description of one phase of this new program has been given elsewhere in this issue. The relatively large totals shown in the chart above for the year 1934 were produced largely by the construction volumes made possible under the old PWA program which is now drawing to a close.

Under the Emergency Relief Act of 1935, nearly \$2,500,000,000 might be available for construction of all descriptions. Of this amount the following represent the three most important classifications: \$900,000,000 for public projects of states and cities; \$80,000,000 for highways, roads, bridges, and grade crossing elimination; and \$450,000,000 for housing, both urban and rural.

There is no way yet by which one may judge how soon projects coming under these categories will get under construction. Many projects doubtless will be undertaken during the current year which should tend to improve the otherwise unfavorable comparisons thus far made between 1935 and 1934 in each of the districts on the accompanying chart.

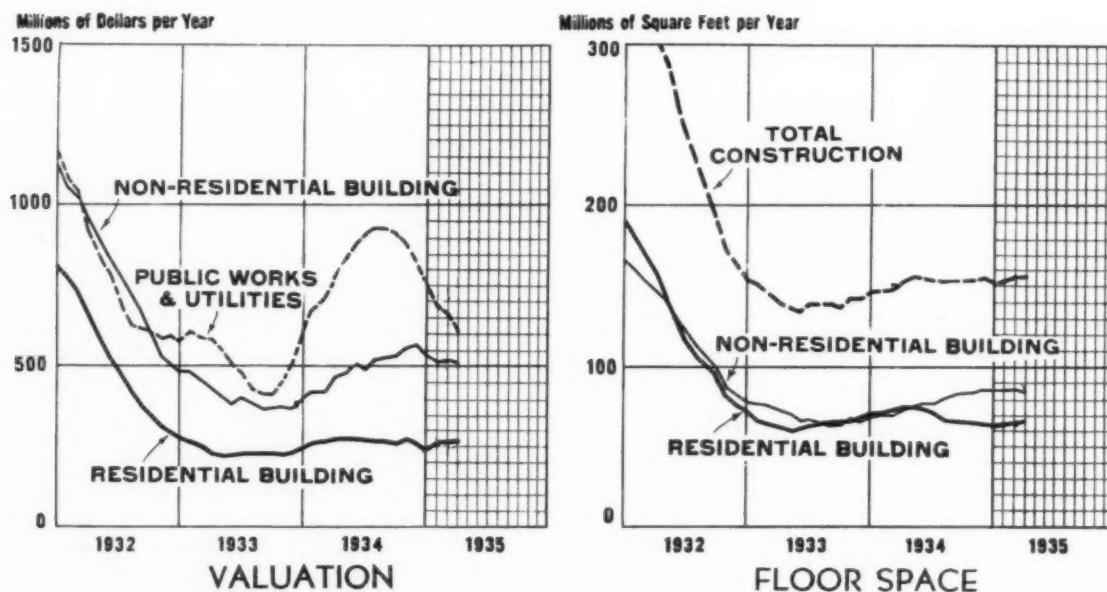
## MATERIAL PRICES, BUILDING WAGE RATES, AND BUILDING COSTS . . . 1926 monthly average = 100



Material prices have shown a tendency to weaken a little in the early weeks of 1935, as seen in the index above. However, a closer analysis indicates that the softness is almost entirely traceable to lumber items. Paints and cement have actually shown a firmer price structure. No change has been in evidence with respect to prevailing wage rates in the building trades.

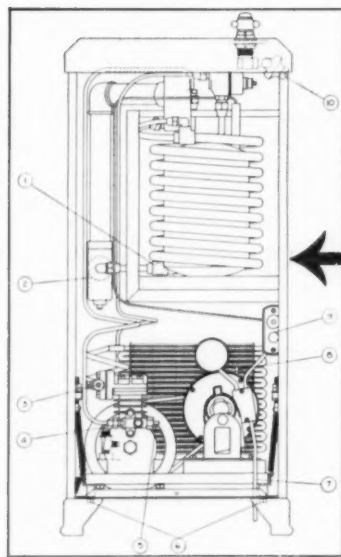
## CONTRACTS FOR CONSTRUCTION . . . 37 EASTERN STATES

Curves plotted as 12-month moving totals

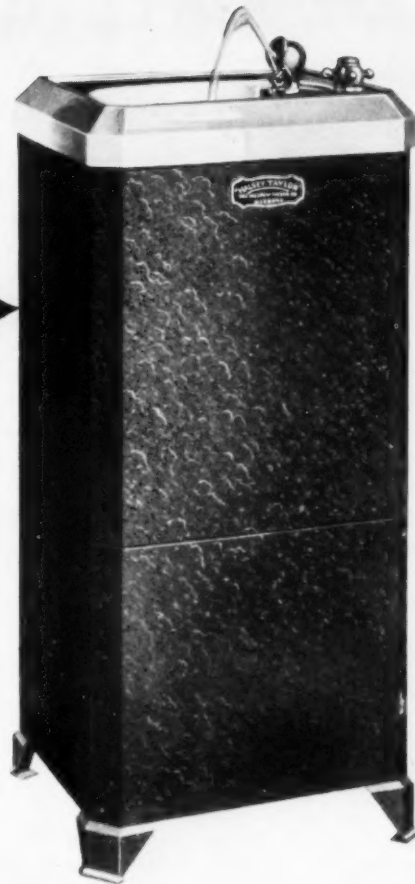


Charts shown above depict twelve-month moving total curves plotted on the end-month; i. e., the figure plotted for a given month represents the total for the twelve months ending with that month. This type of curve thus registers the trend of a given movement and effectively eliminates the seasonal element; a rise in the curve signifies that the figure for the current month was higher than that for the corresponding month of the previous year; and, conversely, a decline in the curve signifies that the total for the current month was below that of the corresponding month a year earlier.





Cutaway view of Everdur storage tank in Model No. 267-P, one of the Everdur-equipped line of electric water coolers manufactured by the Halsey W. Taylor Co., Warren, Ohio. This storage tank will last indefinitely . . . for Everdur cannot rust.



## Rustless EVERDUR Tanks now used in water cooler



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unusual Anaconda Metal fulfills *all the requirements* for durable, rustless storage heaters, domestic storage tanks and tank units in automatic heaters. And all these are available today from leading manufacturers.

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Architects are invited to use the coupon on this page as a convenient means of obtaining manufacturers' publications describing in detail the products and materials mentioned

### E51

#### CURTAIN OF AIR SERVES AS DOOR

The new Burlington Zephyr, streamline train, uses a curtain of air between the kitchen and the area occupied by dining tables as a means of preventing heat and cooking odors from entering the dining area of the car. Through small slits in both sides of the door frame, air is forced toward the center, deflected slightly toward the kitchen. Immediately overhead on the kitchen side is an exhaust ventilator which picks up the fumes checked by the air curtain and delivers them outside the car. The air curtain offers unobstructed vision and free passage at all times. General Electric mechanical equipment is used.

### E52

#### THE HEART OF THE QUIET MAY

A booklet, "The Heart of the Quiet MAY," describes the construction features of this automatic oil burner. It points out how the ordinary type of coal-burning boiler may be converted to an efficient oil heating system through the application of Ther-MAY-lator and EconoMAY Inserts. The booklet is cleverly illustrated.

### E53

#### BOOKLET ON AIRTEMP

Airtemp, the name applying to air conditioning equipment produced by the Amplex Division of the Chrysler Corporation, is the subject of a booklet offered by the manufacturers, describing the functional scope of their equipment. Complete duct systems and separate room-units are illustrated. Fourteen supplementary loose sheets picture the various Airtemp models and give essential data about each.

### E54

#### THE TREND IN SUMMER AIR CONDITIONING

Humidity and the means of its control are treated in an illustrated booklet recently issued by the Bryant Heater Company, under the title of The Trend in Summer Air Conditioning. It describes the principle, in summer air conditioning, of dehumidifying and cooling by separate and independent operations. Bryant's Silica Gel Dehumidifier, as explained in the booklet, employs the adsorption method for dehumidifying. The material used—Silica Gel—is a hard, hygroscopic, manufactured substance, similar in appearance to clear quartz granules, although extremely porous. When moist air is brought in contact with Silica Gel, the pores of the material adsorb the moisture, much as a sponge will sop up water. Easily reactivated by heat, Silica Gel can be used indefinitely. Dehumidifying unit consists of Silica Gel, supported in suitable compartments, fans for conveying adsorption and activating air through the beds; heater, motor, cooler and suitable automatic controls.



### E55

#### ABSORBEX

Absorbex, Type A, is an incombustible acoustical corrective of fine texture with a noise reduction coefficient of 60% to 80%. It is produced in various standard sizes, 1 inch thick, beveled tile form or in special sizes to meet job conditions. Its applications are varied: sound control in offices, hospitals, restaurants, churches, etc.

Absorbex, Type C, used in armories, machinery rooms, auditoriums and similar structures, is incombustible and structurally strong. Its noise reduction coefficient ranges from 50% to 70%. Like Type A, it can be painted and repainted without loss of acoustical efficiency. Both types are described in detail and actual installations illustrated in a booklet offered by the manufacturer, Thermax.

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## TO OBTAIN FURTHER INFORMATION

about any products mentioned, write the index numbers in space below. For literature about products advertised in this issue, give name of the product and manufacturer. Return coupon to The Architectural Record, 119 West 40th Street, New York, N. Y.

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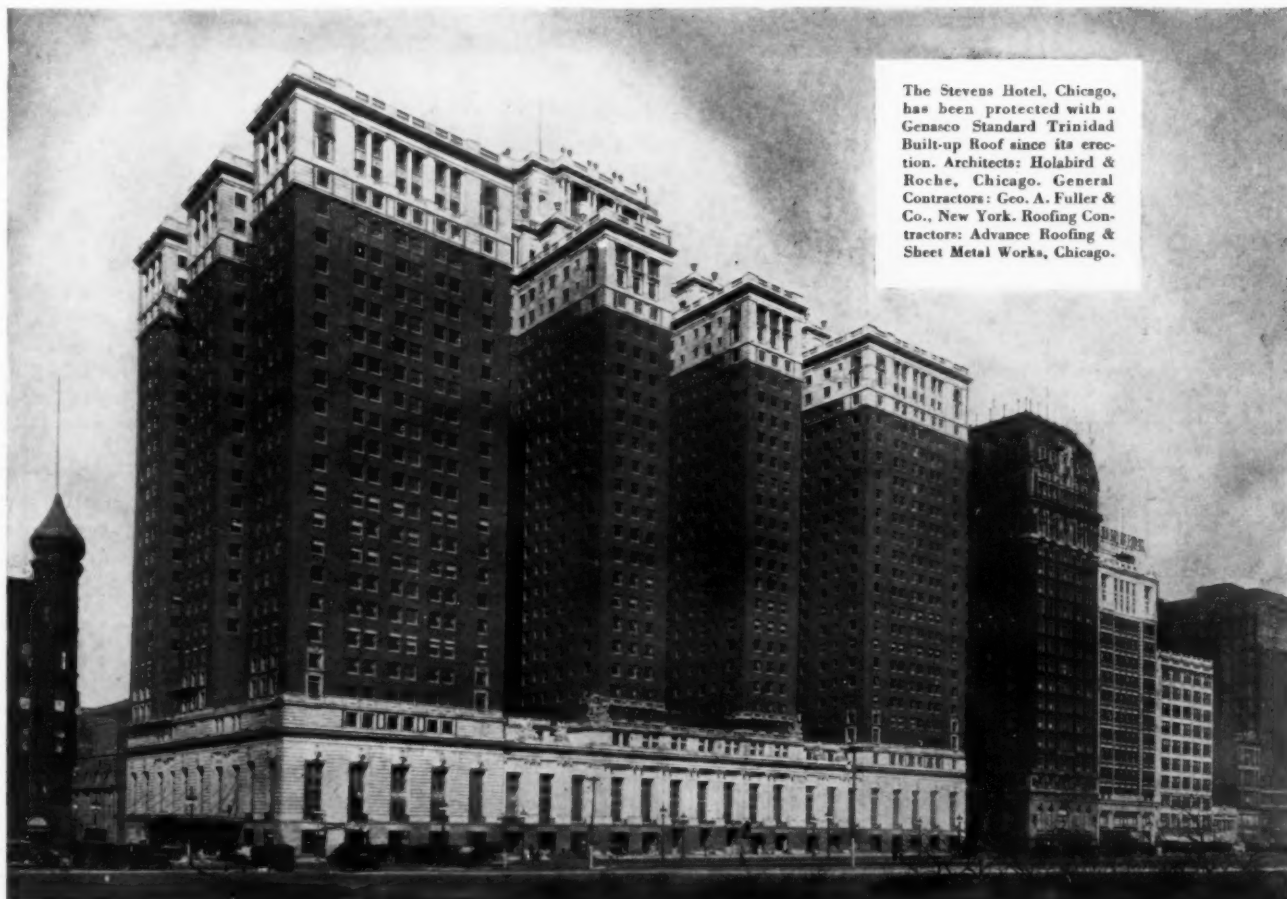
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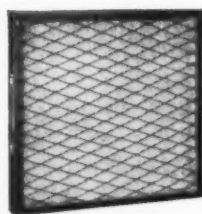
AR5

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**E56**  
**OWENS-ILLINOIS INTRODUCES NEW**  
**AND IMPROVED DUSTOP FILTERS**



A new and improved "Dustop" replacement type air filter is announced by Owens-Illinois Glass Company. The improved filter is fire-resistant, lower in resistance, higher in efficiency, and the life span between replacements has been increased. It is made up of a series of coarse and fine mats of glass fibers, which fibers are bonded to each other to form a semi-rigid mat. The dust and dirt-catching adhesive, a development of the Owens-Illinois Laboratory, has a surface tension four times that of engine oil, which means there is no oil vapor entrained in the air stream. The melting point of this adhesive is 540° F. and is effective to 23° below zero. Air leaving the filter is odorless.

**E57**  
**NEW REPUBLIC STEEL PRODUCT**

Republic double strength steel is a new high tensile steel of copper-nickel-molybdenum ferrous alloy with yield point and tensile strength sufficiently higher than ordinary carbon steel to permit the use of 30% to 40% lighter sections without sacrifice of strength or safety factor. Republic double strength steel, said to have exceptional corrosion-resistance and forming qualities, is made in two carbon ranges and is available in the usual commercial forms. It can be arc, gas or spot welded without loss of ductility at or adjacent to the weld. Cold forming tests have shown the superiority of this alloy from the standpoint of ductility over similar products with the same physical properties.

**E58**  
**NEW PORTABLE PUBLIC ADDRESS SYSTEM**

A new portable address and sound reinforcement system for moderate-sized public places, compactly self-contained in a carrying-case and weighing only 28½ pounds has been introduced by the RCA Victor Commercial Sound Sales department. This adaptable unit, which any one can put into operation in less than a minute, is particularly suited to window demonstrations in dealers' stores, counter-to-kitchen restaurant call systems, and for local fairs and carnivals. The new sound system is to be known as Model PG63-B and will be priced at \$79.50, complete.

**E59**  
**ETERNIT THATCHED SIDING**

The Ruberoid Co. has developed a new version of the Timbertex asbestos-cement siding: an irregular butt line reproducing the effect of weathered cypress shingle applied in the "thatch" manner. Available in silver green and silver gray, this siding shingle, produced in 12" x 24" size, is applied over strips of asphalt roofing, insuring weather protection. Manufacturer has released a folder with detail illustrations of the textures in which the siding is available.

**E510**  
**WELDED TUBULAR DOORS**

A folder illustrating rustless metal doors as installed in restaurants, office and bank buildings, hotels, etc., is released by the Kawneer Company of Niles, Mich. Maintenance costs are said to be virtually eliminated as these doors require no painting or refitting—"will not warp, swell, shrink or sag." Specification data, details of typical vertical and horizontal sections are shown in the booklet.

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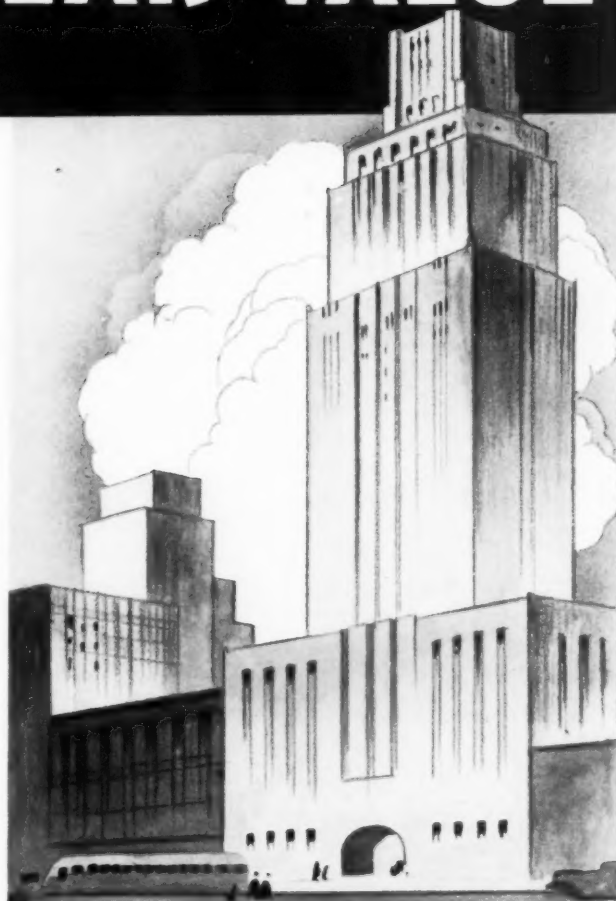


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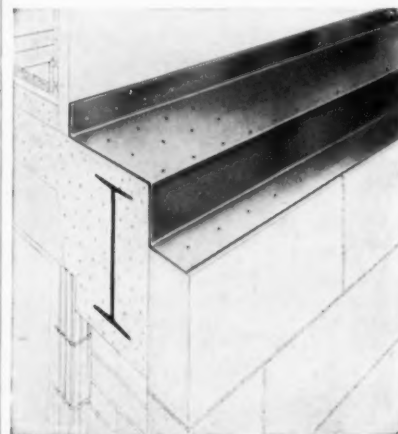
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- ASPHALT SHINGLES
- WATERPROOF SHEATHINGS
- CEMENT WATERPROOFING

### E511 COPPER SHOWER PANS AND MEMBRANES

Shower pans of 16-ounce copper, keyed on both sides to carry moisture toward floor drains, are being produced by The Cheney Company of Winchester, Mass. They are fabricated at the factory in any desired shapes and are shipped ready to install. They are said to be more efficient and more durable than the built-in type of lead pan. Another product of The Cheney



Co. is the copper membrane (illustrated above) known as Spando Waterproofing. It consists of a continuous layer of durable, corrosion proof 3-ounce copper bonded to a 5-ounce canvas which is saturated and coated with asphalt and surfaced with crushed mineral. It is embossed on the copper side with round mounds or bumps, about  $\frac{1}{8}$  inch high and spaced on 4 inch centers, to prevent slippage of the masonry. Spando is installed as the masonry progresses and being flexible it can be folded and formed to any desired shape at the moment of installation. It is laid dry, copper side up, without plastic asphalt or other adhesive (except at end joints), hence it cannot stain the masonry.

### E512 CONCRETE BRIDGES

A fifty-page booklet on concrete bridge details is offered by the Portland Cement Association. The booklet, enlivened with illustrations and marginal notations, discusses most advanced practice in construction of abutments, joints, drainage, wearing surface and other essentials.





*They*  
**LOOK  
TO YOU**

Every man, woman and child is a potential buyer of air conditioning. No construction of importance from this day hence—domestic, commercial, or industrial—will leave air conditioning out of the picture. Factors of health, of convenience, of profit make it as necessary to consider as plumbing or lighting.

They are going to look to you—these people whose building investments will include provision for air conditioning. This is entirely natural, for air conditioning is an integral part of good, modern design, inseparable from other construction considerations which come within the province of the architect.

**KELVINATOR**



Kelvinator recognizes the importance of the architect in this tremendous potential business and is prepared to make available the results of Kelvinator's engineering research as well as the cooperation of the Kelvinator Air Conditioning engineering staff, as specific problems present themselves for solution. . . . **KELVINATOR CORPORATION, 14250 Plymouth Road, Detroit, Michigan. Factories also in London, Ontario, and London, England.**

(1104)

*Air Conditioning*

## GYPSTEEL PLANK\* SAVED TIME AND MONEY FOR THIS CONTRACTOR. Let him tell you why . . . .

● Erecting PLANK on the Artillery Transportation Storage Shed, the Armory Commission, Commonwealth of Massachusetts, J. Theodore Whitney, Engineer. On this job a wood roof was the base specification; PLANK was an alternate. But because the difference in cost was so small, PLANK was selected.



### GYPSTEEL PLANK

U. S. Pat. No. 1,854,396 — Canadian Pat. No. 328,519  
Other U. S. and Foreign Patents Pending

\*The term PLANK as applied to cementitious building products is a registered trade-mark of the American Cyanamid & Chemical Corporation.

**STRUCTURAL GYPSUM DIVISION**  
American Cyanamid & Chemical Corporation  
30 Rockefeller Plaza, New York, N. Y.

#### P. J. CANTWELL & SON CONTRACTORS AND BUILDERS 88 BWINNELL STREET

WEST BOSTON, MASS., March 11, 1935.

Waghorne-Brown Company,  
Laternan Building,  
44 School Street,  
Boston, Massachusetts,

Attention of Mr. A. C. Waghorne.

Dear Sir:

Now that we have finished erecting the 60,000 feet of gypsum plank which you furnished us for the roof of the Storage Shed, at Mattick, Massachusetts, we would like to take this opportunity of letting you know what we think of the plank.

In the first place, this work was being done under severe winter conditions, which of course would have made the cost of a concrete roof prohibitive. We found Gypsteel Plank very easy to handle and erect — in fact our erection cost was no more than it would have been had we used a wood plank roof with spiking pieces.

All of the comments which we have heard relative to the appearance of the plank from the inside are very favorable. Although the specifications require it to be painted, we feel that for many installations an unpainted job would be very satisfactory.

In the future we are hoping to make further use of "Gypsteel Plank".

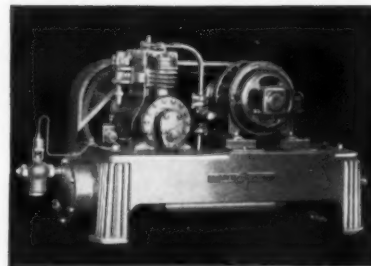
Very truly yours,

P. J. Cantwell & Son.

By

*B. O. Cantwell*

More and more architects and builders are discovering that PLANK is the ideal material for fast, inexpensive roofs and floors. It offers practical advantages for fire-safe construction in low cost installation, speed of erection, strength and weather resistance. The rise in sales (more than 800% in four years) proves conclusively that PLANK fills a definite need in the building industry today. Send for bulletin.



#### E515 NEW CONDENSING UNITS BY GENERAL ELECTRIC

Eight new condensing units of from 1½ to 20 horsepower and rated at from 1.8 to 21.50 tons refrigerating capacity have been announced by the Air Conditioning Department of the General Electric Company. These new units are additions to the present G-E line; three of them are equipped with water-cooled, double-tube counterflow condensers, the others having new shell-and-tube condenser-receivers. All of the new units have external motors with multiple V-belt drive to the compressors, liquid refrigerant filters, suction pressure controls, high-pressure safety lockouts, water regulating valves, service valves, and water and refrigerant connections. Units are shipped with a full charge of lubricating oil and a holding charge of Freon refrigerant. Included with each unit is a magnetic motor starting switch and a thermal overload protective device for the motor.

#### E516 NEW MULTIPLE-OPERATING WINDOW

A wooden window of awning-type design, especially suitable for schools, hospitals and similar buildings, has been developed by Dalmo Sales Corporation. Hand-operated clutches are entirely eliminated. Construction is simplified and operation expedited by automatic disconnection and re-connection action of lower sash arms. All sash operated in unison by motion of lower sash. Automatic disconnection at predetermined position fixes two upper sash in that position, and permits independent setting of lower sash at closed or any open position. Re-connection is automatic with return of lower sash to fixed position of upper sash.

#### E513 FORMICA DOORS

A brief folder published by the Formica Insulation Co. illustrates recent installation of Formica doors in theaters, hotels, department stores, etc. Standard designs and special color designs, metal inlaid, are shown. These doors are made by veneering Formica sheet on a wood core, or on a combination metal and wood fire door.

#### E514 CAST IRON

A booklet on cast iron verandas, railings, entrances and balconies has been issued by Smyser-Royer Company. "New, practical and refreshing effects may be obtained at moderate cost with cast iron craftsmanship," states the introduction to the booklet. Photographs and detail drawings illustrate typical applications.

AIR  
CONDITIONING  
AND  
ENGINEERING

by  
*Engineering  
Staff*  
AMERICAN BLOWER  
CORPORATION

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FOURTH EDITION

*Merriam-Webster*  
NEW YORK, N.Y.

G & C MERRIAM CO.

MECHANICAL  
ENGINEERS'  
HANDBOOK

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Second  
Edition

McGraw-Hill  
BOOK COMPANY



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## INDIVIDUALLY ENGINEERED AIR CONDITIONING

Laid out and specified by leading architects and consulting engineers.  
Designed and manufactured by American Blower Corporation.  
Installations made by responsible contractors everywhere.

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*Branches in all principal cities. Established 1881*

**DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION**



# HIGGINS' INK ATELIER

CONDUCTED BY ARTHUR L. GUPTILL, A.I.A.

## .. the rendering of ORNAMENTAL DETAIL



**UNLESS** you are familiar with "Fragments d'Architecture Antique," by H. D'Espouy, go to an architectural library and study these famous rendered documents. Here is a reproduction at small scale of a portion of one. It suggests their beauty.



**FOR** rendering of this careful type, **HIGGINS' BLACK DRAWING INKS** have many users. For wash-like portions, the **GENERAL BLACK INK** (soluble) is generally the one selected. It can be diluted with water to suit. Why not try it?

**CHAS. M. HIGGINS & CO., Inc.** 271 NINTH STREET BROOKLYN, N.Y.

### E517

#### NEW MATERIAL ADAPTED TO VARIETY OF USES

Catalin is the name of a synthetic material recently introduced into architectural use. The material resembles crystal or translucent glass yet it is not easily shattered and is said to be considerably lighter and easier to work than glass. In other forms Catalin, has long been used for the manufacture of costume jewelry; it resembles precious and semi-precious stones. The French Casino, a theater-night-club in New York, has employed Catalin for exterior and interior decoration. Among the applications are these: (1) Catalin sheets two feet wide and sixty feet long for facing of bar behind which runs a neon tube diffusing light throughout the strip; (2) curved strips to conform with shape of bar; (3) tubular shaped Catalin in which incandescent lights are used. This new material may be obtained in any color, from water-white crystal to jet black, and in any degree of translucency.

### E518

#### NEW JERSEY ZINC

The New Jersey Zinc Co. offers a booklet on Metallic Zinc Powder. As a primer and finishing coat for iron, steel and galvanized surfaces Zinc Dust paint is said to possess a combination of unique properties. Noteworthy advantages include: (1) excellent adherence to galvanized iron; (2) it

is rust inhibitive, making it suitable for priming black iron; (3) it effects complete hiding in one coat over a background of any color. New non-gassing Zinc Dust, produced by the New Jersey Zinc Co., has largely eliminated gas formation which is of importance in the storage problem.

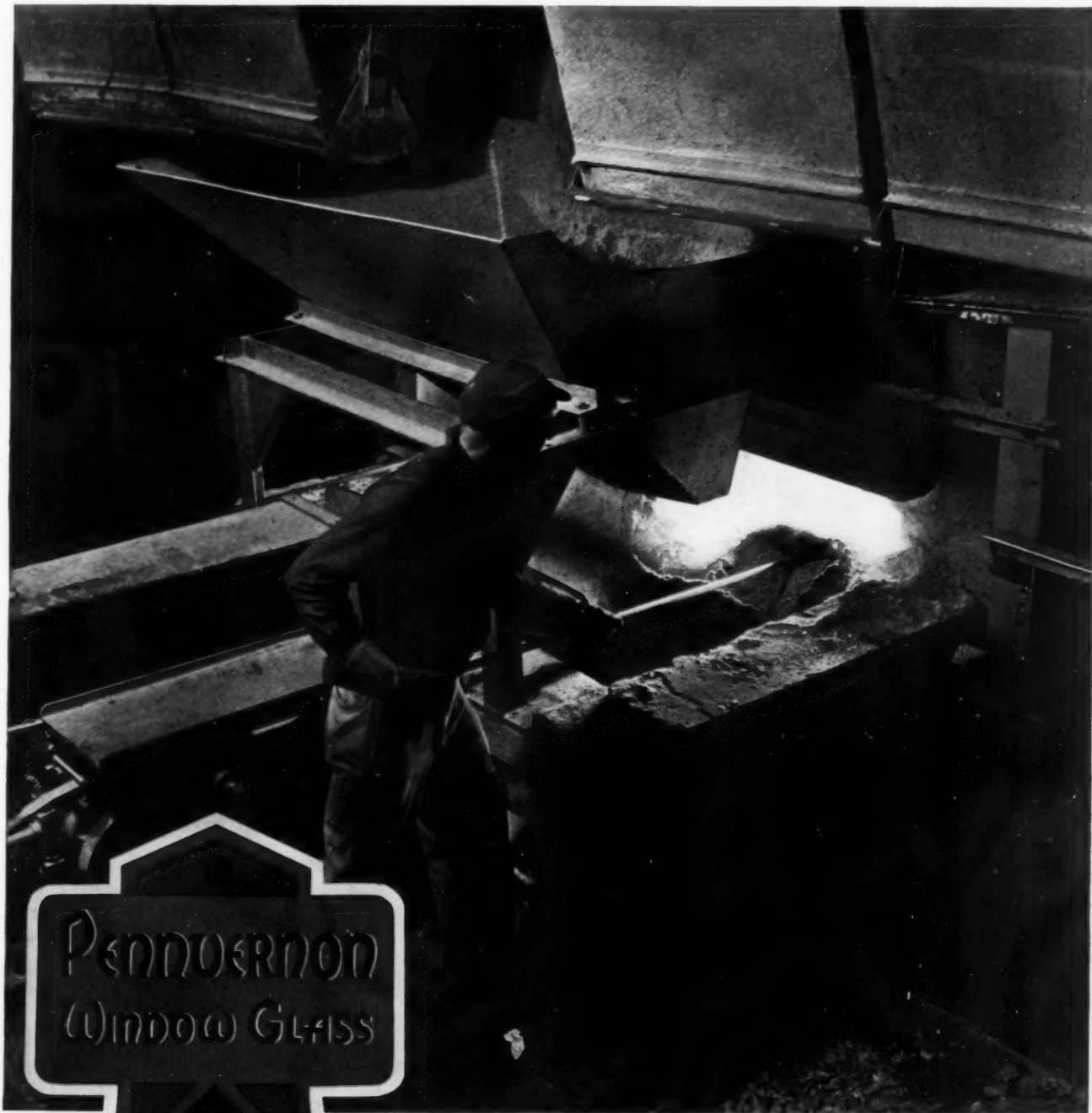
### E519

#### TELAFIRE ALARM UNIT

A new, low cost fire alarm unit, the Telafire, is announced by G-M Laboratories, Inc., Chicago, for use with the conventional electrical alarm systems such as bells, buzzers, red lights, etc. It is adapted to use in homes, factories, stores, garages, warehouses and other buildings subject to fire hazard. An important feature is the mercury contact tube which protects the contacts from corrosion, dust, dirt, grease and other accumulations which could easily prevent operation of low voltage devices of this character. This tube is air tight with two contact wires entering through the upper end and a quantity of mercury in the lower end. Under the action of heat, the movable arm on which the tube is mounted is released, permitting one end to drop. As it drops the mercury flows around the wires, making an electrical connection and completing the alarm circuit.



Specify "PENNVERNON"...not just "window glass"



Pennvernion  
Window Glass

A

Photograph by Johnston & Johnston

**FOOD FOR THE FIERY FURNACE**  
are these tons of pure Pennvernion  
"batch" materials. Guided by this  
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receives them, fuses them at terrific tem-  
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Our new booklet, called "The Making of a  
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ufacture of Pennvernion Window Glass. To get  
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# FOR CLEARER SPEECH EASIER HEARING MUNICIPAL BUILDINGS NEED ACOUSTI-CELOTEX

**I**MPRESSIVE public buildings—beautiful in design—yet how often disappointing because one important factor has been overlooked! The acoustics are so poor that speech sounds scrambled and hearing is made difficult. Acoustical treatment has been omitted.

Acousti-Celotex Sound Absorbing Tiles installed in accordance with the findings of a scientific analysis are protection against such defects—an assurance of clearer speech, easier hearing in auditoriums, council chambers, courts, committee and board rooms.

Acousti-Celotex is applied directly to ceilings and walls, old and new; is pleasing in its natural finish; lends itself to attractive designs and patterns; may be painted or stenciled to harmonize with any decorative design; retains its acoustical efficiency after repeated painting because patented perforations permit access of sound waves within the absorbent material.

The Acousti-Celotex contracting engineer in your city will gladly co-operate with you, submit scientific analysis and costs; or write direct.



*St. Louis Municipal Auditorium, St. Louis, Mo.—Acousti-Celotex installed in the theater and four assembly rooms to assure clear speech and easy hearing.*

THE CELOTEX COMPANY, 919 No. Michigan Ave., Chicago, Ill.



PAINTABLE PERMANENT  
**ACOUSTI-CELOTEX**



## E520

### GRILLES AND REGISTERS

Tuttle & Bailey offer a new catalog illustrating modern grilles and registers, especially designed for forced air and air conditioning work, either on domestic or commercial buildings. The new line includes special grilles that offer a minimum resistance to air flow; grilles and registers with fixed and adjustable directional air flow; volume control dampers; ceiling outlets, and other special devices. The "Flexair" grille, one of the new products shown in this catalog, can be adjusted at the job to provide a wide range of air deflections. Positive adjustments are made by two controlling levers concealed back of the grille margins. "Ducturns," another new product, is a device for use in ducts to turn high velocity air around right angle elbows. The tubular blades, of which it is composed, are shaped to turn air at right angles with a minimum friction loss, thus eliminating the necessity for long radius elbows.

## E521

### A BOOKLET ON ELECTRODES

Technical data, including principles of design and operation, physical properties and chemical analyses of deposited metals, are given in a new booklet on Mutex all-mineral coated welding electrodes, issued by the Metal & Thermit Corporation. The booklet is fully illustrated showing applications of various Murex Electrodes. Features of these electrodes include a patented spiral winding of asbestos yarn, which is non-combustible and anchors the extruded coating to the core wire so that it does not crack off when the electrode is bent. The winding also assures uniform thickness of the coating and prevents wandering of the arc when welding.

## E522

### GENERATING PLANT

For homes and farms where public service power is inadequate or subject to interruption in bad weather The Electric Specialty Company of Stamford, Connecticut, manufactures a gasoline electric generating plant called "Esco." The available models, both for direct and alternating current, are described in a newly released folder.

## E523

### NEW WATER MIXING VALVE

A thermostatic water mixing valve known as SAFE-T-SHOWR is produced by the Doran Co., of Seattle, Washington, at prices ranging from \$22.50 to \$27.50. According to the manufacturers this valve has proved efficient in tests extending over two years. It mixes hot and cold water, thermostatically controls and delivers it at a fixed temperature. It is not affected by changes of pressure in either hot or cold water supply lines.





## **THESE THREE CATALOGS**

are now being prepared for your use. A good deal of care is being spent on each. Also a lot of time. Also a considerable sum of money.

**No. 1** will be mailed to you with a request that you file it for future reference.

**No. 2** won't be sent to you unless you ask for it.

**No. 3** will be delivered to your office, bound with hundreds of others, in SWEET'S CATALOG FILE.

When, at some future time, you want the information these catalogs contain, which catalog will have the best chance of receiving your attention? Many manufacturers who are now planning new catalogs would like to have your answer.



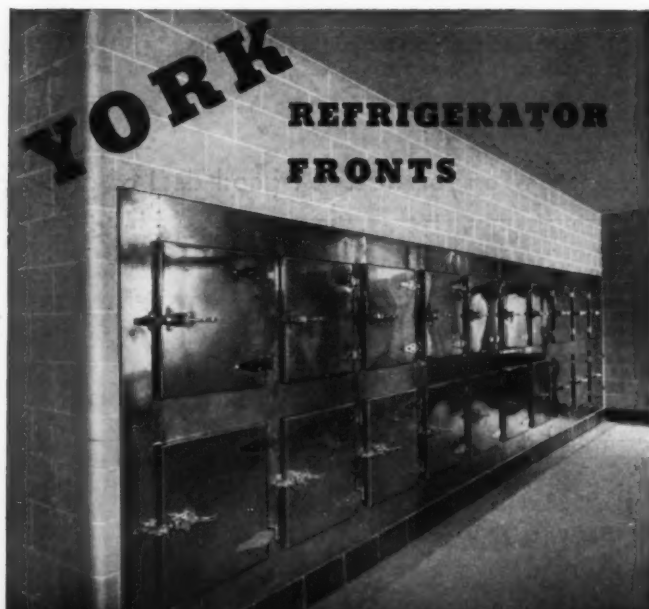
**YOU DON'T  
HAVE TO PUT COTTON  
IN YOUR EARS**



Pat. 1,970,105

•The quieter operation of Fedders Series 3 Unit Heaters is made possible by streamline tubes, exclusive fin design, graduated pitch fans, resilient motor mountings which isolate vibration, and sturdy cabinets which eliminate resonance. Quieter operation combined with handsome appearance lets you use their high heating ability in stores, banks, offices, auditoriums, lobbies, as well as factories, garages, etc. Write for Catalog 527—it takes them apart for you.

**FEDDERS MANUFACTURING CO.**  
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Built to order in sections of two doors up to any number required. Finished in any specified wood or metal, and equipped with special hardware. Correct design and rugged construction mean years of service. It will pay you to write for descriptive booklet.

**YORK ICE MACHINERY CORPORATION, YORK, PA.**

**ROBERT GAIR COMPANY, INC.**

Robert Gair Company, Inc., announces acquisition of London Shipping Containers, Ltd., of London, Ontario, and of Canadian Containers, Ltd., of Windsor, Ontario.

**CRANE CO.**

Mr. C. B. Nolte has been elected president of Crane Co. Mr. J. B. Berryman, who had been president since 1931, and who has been connected with the Crane organization since 1892, has become Chairman of the Board.

**NATIONAL RADIATOR CORPORATION**

Mr. Charles P. Culbert has been appointed manager of the Oil Heating Division of National Radiator Corporation, manufacturer of National Boilers, Aero Radiators and Convectors, according to an announcement from the general offices of the company, at Johnstown, Pennsylvania. Announcement is also made that Mr. Thomas A. Novotney has accepted an appointment as member of the Technical Advisory Committee of the American Society of Heating and Ventilating Engineers.

**CAST STONE EXHIBIT**

An exhibition of cast stone will be held May 15, 16 and 17 in Washington, D. C., at the U. S. Chamber of Commerce Building. The exhibition is being sponsored by the Cast Stone Institute and will include samples, models and other exhibits from cast stone plants throughout the country.

**BRIGGS MANUFACTURING CO.**

John A. Callahan has been appointed to take complete charge of operations of the new plumbing division of the Briggs Manufacturing Co. According to Mr. Callahan the company has been developing its plans and experiments in the plumbing field for more than two years and now is ready to enact a program of mass production.

**ROBERT W. HUNT COMPANY**

Robert W. Hunt Company, Engineers, conducting a national and international engineering inspection, testing, and consultation service, has accepted the resignation of Mr. C. B. Nolte, their President, who has accepted the Presidency of Crane Company. Mr. James C. Ogden will succeed Mr. Nolte as president. He will be assisted in the operation of the organization by Mr. F. M. Randlett, as Vice President and General Manager.

**EAGLE-PICHER SALES CO.**

Announcement is made of the opening of a new divisional office in the Temple Bar Building, Cincinnati. A staff of engineers operating from this office are prepared to assist in the solution of installation problems employing the most advanced methods and materials.